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U. S. DEPARTMENT OF AGRICULTURE.

PROCEEDINGS OF A CONFERENCE TO CONSIDER
MEANS FOR COMBATING FOOT-
AND-MOUTH DISEASE.

HELD AT CHICAGO, ILL.,
NOVEMBER 29 AND 30, 1915.

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1916.

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PROCEEDINGS OF A CONFERENCE TO CONSIDER MEANS FOR COMBATING FOOT-AND-MOUTH DISEASE.

THE CALL FOR THE MEETING.

Pursuant to the following call, a conference to consider means for combating foot-and-mouth disease was held at the La Salle Hotel, Chicago, Ill., November 29 and 30, 1915:

DEPARTMENT OF AGRICULTURE,
WASHINGTON.

During the recent outbreak of the foot-and-mouth disease the Government had to contend with four extremely serious avoidable difficulties. First, a lack of "preparedness" on the part of the Federal, State, and local authorities, owing to the fact that but few veterinarians experienced with foot-and-mouth disease were available to cope with such an extensive outbreak as confronted us from the very beginning. Second, a lack of ready money on the part of State and Federal Governments. Third, lack of proper coordination of efforts between Federal, State, and local authorities and live-stock owners. Fourth, the lack of knowledge on the part of people generally as to the extraordinary infectiousness of this disease.

It is greatly to be hoped that this scourge will never again break out on our continent, but while hoping for the best, the Federal Department of Agriculture is already at work preparing to minimize the worst, in case it again should fall to our lot. During the past three months, while stamping out the last sporadic outbreaks of the disease throughout the country, the department has been busily engaged preparing plans and specifications, down to the minutest detail, for promptly combating any future outbreak.

In the future it is hoped to take such precautions that no fire department will be in greater readiness for instant action when the alarm sounds than will be the Department of Agriculture when the next call comes to do battle with the foot-and-mouth disease. Form letters, posters, newspaper articles, and minute instructions for meeting every possible emergency are now being prepared, so that they may be ready at all times for instant use throughout the entire United States upon telegraphic order.

So much for our new policy of "preparedness."

Two other difficulties, however, still confront us: That of properly financing the next campaign against the foot-and-mouth disease and that of properly coordinating the work of Federal and State authorities. These difficulties the Federal department has no power to overcome without the aid of Congress, of State legislatures, and of State live-stock sanitary officials.

The Federal Department of Agriculture has decided, therefore, to call a conference of State live-stock sanitary officials, agricultural college experts, practical stockmen, and representatives of live-stock papers, transportation companies, stockyards, county banks, and of the Federal Department of Agriculture for the purpose of discussing ways and means of solving these and other important problems. This conference will be held at Chicago, November 29 and 30, and will be purely advisory. The Federal department hopes at this conference to secure all possible light on the problem under discussion, but with regard to Federal administrative problems it of necessity must be the final judge as to what suggestions are helpful and which are impracticable.

State officials likewise will be asked to attend the conference, for the double purpose of throwing what light they can on the various problems under discussion, and of learning all they can from other delegates, but they likewise

must reserve the right to form their own judgment as to the practicability of suggestions concerning future administrative State action.

Moreover, it can not be made too clear that the purposes of this conference are to be constructive. The conference is not called for the purpose of rehashing ancient history or of airing personal grievances, real or imaginary. The conference is to be a forward-looking body, representing every legitimate interest connected with the production or marketing of live stock. It is to be hoped that as a result of this conference information may be collected and coordinated that will prove useful to Federal, State, and local officials, as well as to Congress and to the various State legislatures during their future consideration of the various problems connected with this appalling menace to the live-stock interests of the country.

This meeting will be held at the LaSalle Hotel, where special hotel rates have been obtained for the benefit of the delegates.

You are hereby invited to attend and participate in this conference.

Very sincerely, yours,

CARL VROOMAN,
Acting Secretary of Agriculture.

Copies of the foregoing letter of invitation were sent to State officers concerned with live-stock affairs; to officers of stock-raisers', breeders', and dairymen's organizations; to representatives of agricultural colleges and transportation and stockyard companies; to editors of live-stock journals; and to interested stockmen, farmers, and bankers. A list of those in attendance appears at the close of this report. Hon. Carl Vrooman, Assistant Secretary of Agriculture, presided.

MORNING SESSION, MONDAY, NOVEMBER 29, 1915.

CHAIRMAN'S OPENING STATEMENT.

MR. VROOMAN. Gentlemen, this conference has been called by the Federal Department of Agriculture in order to confer with representatives of the State live-stock boards, State agricultural colleges, live-stock associations, railways that transport live stock, stockyards, country banks, and all the important interests connected with the live-stock industry in the United States.

The importance of this meeting is twofold. In the first place it has definite and specific work to do with regard to those vital problems that are to be discussed during the next two days; secondly, it marks the inauguration of a new policy on the part of the Federal Department of Agriculture. Henceforth the Federal department means to work not only *for* the farmer, but *with* the farmer and with representatives of all the business enterprises connected with the agricultural interests of the country. [Applause.]

The Federal Department of Agriculture does not consider that it has any monopoly on truth. It does not feel that it knows all that can be known on all the diverse problems with which it has to deal. We have a large corps of scientists working on these problems every day. In fact, we have what is generally recognized as the greatest corps of scientific workers in the world. We are very proud of these men and the work they are doing. But we want in addition to them the practical experience of the practical farmers and the practical business men who are associated with the agricultural interests of the country. We want all the light that they can throw upon all these problems with which we have to deal.

The United States of America has not the greatest Army in the world. It has not the greatest Navy in the world. Until very recently its Post Office Department was not as efficient in a good many particulars as were the postal departments of a good many other countries. But for a long time we have had the greatest Department of Agriculture in the world. But this fact does not prevent us from wanting to make our Department of Agriculture in the future a bigger and better and more efficient department than it has been in the past. We want to cooperate with the State officials who are interested in agriculture; we want to cooperate with county officials; we want to cooperate with farm organizations; and we want to cooperate with individual farmers throughout the United States. This is a policy which applies not only to the fighting of disease, but to the entire work of the department.

There are a number of problems which are to be discussed here to-day and to-morrow by specialists, representing the different points of view from which these problems may be studied and worked upon. Before calling upon any of these specialists I want to make a preliminary statement about some of these problems and the general attitude of the Federal Department of Agriculture toward them. We have just come through the most arduous campaign that has ever been carried on by the authorities of the United States against an animal scourge. This disease has now been stamped out in 21 States and in practically every county in this State [Illinois]. Some of our States are as large as countries in Europe, so, by European standards that means practically as much as the stamping out of this disease in 21 countries. This is an unparalleled achievement. But it does not mean that the methods that we have used during the past year can not be improved upon. It does not mean that we can not get greater efficiency into our work in the future than we have had in the past. It does not mean that we can not get a greater degree of cooperation between Federal officials, State officials, county officials, and the individual farmers of the country. It does not mean that we have not made any mistakes. I know of one of the greatest surgeons of the United States who operated on a man for appendicitis, and after the operation found out that the man was not afflicted with appendicitis at all but with pneumonia. I mentioned this fact at the National Security League dinner to the gentleman who sat on my right, and he replied: "Two of the greatest doctors in Chicago diagnosed my child's case as appendicitis and were on the verge of operating on the child when they suddenly discovered that it was pneumonia." Now, we have a wonderful corps of veterinarians in our department, but they are human beings, and they are as liable to err as other doctors are, or as lawyers or other trained men are, but no more so.

We feel that there are a number of ways in which the efficiency of our department and of the work which our department does in cooperation with State officials, county officials, and farmers can be increased. I want to talk briefly about two or three problems in this connection. One has to do with the appraisement of stock and the compensation given to stockmen whose herds are to be slaughtered. There has been a widespread feeling among the stockmen of this country, particularly the owners of pure-bred live stock, that we

were not paying them enough; that the compensation given has not been sufficient; and we are in hearty agreement with that feeling. [Applause.] The Secretary of Agriculture, during the last session of Congress, recommended to Congress that the department be allowed to pay a maximum of three times the beef or dairy value of pure-bred registered animals slaughtered. Congress did not see fit to grant us this power, and without congressional action we are as powerless to do this as you are. This recommendation is to be repeated to the forthcoming Congress, and if it has the backing of the live-stock men of this country, Congress certainly will give it serious consideration and, I trust, will see the wisdom of it.

One of the other very important problems that has caused a great deal of discussion, probably more than any other problem that has come before us in this campaign, is the question as to whether pure-bred herds should be slaughtered. I have not time to go into this question in any great detail. I merely want to say that the Federal department officials are as averse to slaughtering pure-bred live stock as are the pure-bred live-stock men. [Applause.] It is a sad enough sight to see a lot of scrubs or grades driven into a ditch to be shot, cut open, covered with lime, and buried. But to see a herd of pure-bred live stock treated in that way is simply heartbreaking—not only to the man who has raised and who loves them, who has put into them not only his money but his whole time and interest and attention, but as well from the standpoint of the country at large and of the department that has to do the killing to serve the interests of all. The only grounds upon which the Federal department has been slaughtering cattle, pure-bred cattle as well as others, has been upon this principle, which is the fundamental principle of social economics: That every individual should have all the liberty he can have, provided his liberty does not infringe upon the like liberty of other people. In other words, the individual's interest should never be allowed to prevail when it is incompatible with the public weal. And if we can ever find any way, or if you can show us any way, to save the pure-bred breeding animals of the country we shall be as glad as you are. We can not turn to you and say, "Gentlemen, you solve this problem; you take the responsibility; you do the deciding." Congress has laid upon us the heavy responsibility of deciding these problems to the best of our ability. But we are going to call you into counsel. We have called you here to-day. The latchstring hangs out in Washington whenever you want to come there to bring us any new information or to shed any new light on any of these problems. We want all the light we can get on these problems. We are ready to confer with you, to see things from your point of view as well as from our point of view. We are anxious to do it, just as anxious as you are. We are anxious to solve these problems right. But after all the information has been brought to us and considered by us, the responsibility is ours to decide what, in the light of all the facts we have been able to secure, is the wise course to pursue.

Another very serious problem is that involving the hog-cholera serum, which, we think, was the cause of the last recurrence of the outbreak of foot-and-mouth disease. The Federal Department of Agriculture is not satisfied with the powers which Congress has conferred upon it with regard to the regulation of the hog-cholera serum of the country. We have neither the powers nor the appro-

priations which we think we ought to have. When the tests are made, we have not been able to control the selection of the animals from which the serum is made. And that is the crux of the whole matter. The Secretary is working on this problem and expects to make certain recommendations to Congress. These recommendations will probably appear in his forthcoming annual report. We are very anxious that this problem should be better handled in the future than it has been in the past, and with the proper help from Congress it will be.

Then there are problems connected with the State work. State legislatures probably will be called upon during the coming winter, where they are in session, to pass new legislation which will enable State officials to do more effective work than they have done in the past. I shall not attempt to talk upon this subject, because it is one upon which I have no special competence. But I feel very confident that a great deal of help can be given by legislatures to State officials. Then a very great deal of help to State and Federal officials can be given by farm organizations and individual farmers, for if there is any one thing that is certain it is this, that the Federal and State officials can not do their work in the most efficient manner possible unless they have the whole-hearted, whole-souled cooperation of the individual farmers in every county where the foot-and-mouth disease exists. [Applause.] That is a work for the farmers and the farm organizations to take up. There are a great many things the farmers in the community can do a good deal better than we can, and there are a great many things that we can not do at all unless we have their cooperation. In some States, and notably this one, that cooperation has in a number of instances been very conspicuous by its absence. Individual farmers have helped their neighbors to hide the disease, not knowing that in so doing they were, financially speaking, cutting their own throats. A campaign of education is necessary to give the individual farmers of the country a knowledge of the essential facts about this disease and about other animal diseases—for this is only one of many scourges, and if we organize properly for combating this disease it will mean that we are organizing properly for the combating of all other animal disease. There are other animal scourges besides the foot-and-mouth disease, namely, tuberculosis, contagious abortion, anthrax, blackleg, etc. We must fight them all, and not only this year but through the coming years and perhaps through the coming centuries.

This meeting is important not only for the definite things that we are going to talk about here and the light we are going to throw on various problems, but it is primarily important as a starting point from which to organize the farmers, the county officials, the State officials, and the Federal officials into one compact organization, or rather into one common consciousness that will help us to work out our many problems in the most efficient way.

Just a word as to what that means. I fear that sometimes we see the trees and overlook the forest. We see the little details, but fail to get a vision of the whole. I hope that in our deliberations here during the next two days we shall never lose from sight the great vision of what we are working for. The farmers of this country are producing every year ten billion dollars' worth of products. Ten billion dollars' worth! That is the price on the farm. What the

prices are when the things reach the consumer, God only knows. [Laughter.] But that is all that we get out of it. I am not overstating matters at all when I say that if the information which the agricultural colleges and the Federal department possess upon agricultural problems could be applied by the farmers of this country, that ten billion dollars' worth could be increased within a decade by at least 25 per cent or two billion and a half dollars, and that in another 10 years it could be increased another 25 per cent, merely by the injection of the proper amount of gray matter—of brains—into agriculture. And that is stating it mildly. I made a statement some months ago that if we would but apply all this scientific information to our practical farming operations the farmer would increase his output ten million dollars' worth a day for every growing day of the year, and the statement was challenged. I got the Bureau of Crop Estimates to look it up for me and found that I had made a slight error, that instead of ten million dollars a day it was twelve million dollars a day! And that for only two crops, corn and wheat.

Now, if we will only get together, not only on this problem but on all the problems that we have to meet, and pool our information and get some team play into our work, there is a future spreading out before this country in the way of agricultural progress that it would be hard for me to paint in too extravagant terms. You all know about the industrial revolution of the eighteenth century. I want to go on record here this morning as prophesying that the agricultural revolution of the century in which we now live will be as important and as far-reaching in its influence upon civilization as was the industrial revolution.

We are engaged in no small pursuit. The gospel of the New Agriculture means something more than a few more dollars in your pockets or mine. It means the building up upon this continent of a new civilization based upon the spirit of cooperation—for you can no more realize the possibilities of the New Agriculture as individualists and Ishmaelites than you can realize the possibilities of self-government unless you have within yourselves the spirit of democracy. Gentlemen, we are engaged upon a great enterprise, a great adventure, something worthy of us all. We all hear that the statesman should be a business man. I want to say to you also that the farmer and the business man of the future must be a statesman if he is to realize for himself individually the possibilities of his profession or if he is to take his part and contribute his share toward building up the agriculture of this great country.

Now, while nearly all the world except ourselves is at war, we have opportunities that never before in the history of mankind have come to any nation. Can we rise to this occasion? Can we see some of the possibilities stretching out before us? Can we dominate the hog and the tiger in our natures, slough off our selfishness, our prejudices, our paltry personal ambitions, and work for this great cause—this great, patriotic cause of making of this Nation what nature has already made it potentially—the greatest, the most powerful Nation in the world, a leader in agriculture, in industry, in material civilization, as it is in liberty and law? Let us look at all the minor definite problems that come up during the next two days from this point of view, the big point of view. We are met here as farmers, as Government officials, and as representatives of the business world,

but we are vastly more than that. Let us meet here to-day as American citizens, as patriots, engaged together in one of the greatest enterprises that is now being carried forward on our planet. [Loud applause.]

Senator J. A. WHITE, of Iowa. May I ask you a question regarding the appropriation matters? You spoke about the appropriation for paying for the stock that was killed. Don't you think where the Government or the State quarantines a man, and he has a lot of stock on hand—say, for instance, fat hogs—and won't let him ship those hogs in a hog-cholera community, and they die, and he is put to other expenses by quarantine—don't you think they ought to be paid half by the Federal Government and half by the State?

Mr. VROOMAN. Well, you have broached a very large question and one which in due time I shall be glad to see taken up; but before we attempt to pay the farmer for the indirect injury that is done him it seems to me logical that we should first take up the problem of the direct injury that is done him.

Senator WHITE. Wouldn't you call that direct injury? If that man is quarantined there and he is forced to see his property destroyed for the good of the State or the Federal Government, or both, wouldn't that be a direct matter?

Mr. VROOMAN. I would call it indirect, but at the same time it is a loss to him; it is an injury to him. He loses the money; he might go bankrupt. I can understand that perfectly.

Senator WHITE. Some men have practically done so. The State has tied them up, or the United States, and they can not move their stock. We won't discuss whether that is just or not. It seems to me that when a man is tied up for the good of the State and the State tells him to lose, it is simply confiscating his property.

Mr. VROOMAN. That is a fact which must be taken into account as we are working out this problem. We will take it into account, but as I said before, the other must be done first. We must analyze the problem and take it up one step at a time. You have to analyze anything in order to think clearly on it. I can't look at this whole room at once. The point is worthy of our careful consideration.

The first speaker on the program has just wired me that he can not be here this morning. He will be here to-morrow morning, and I am going to shove up the program a little to allow him to go on to-morrow. We will begin with the second speaker on the program, Mr. McFadyen, of the Pittsburgh Union Stock Yards, speaking on the topic "The application of quarantine to public stockyards and what restrictive measures should be employed to prevent the infection of such yards which so far as possible shall not burden traffic."

THE APPLICATION OF QUARANTINE TO PUBLIC STOCKYARDS AND WHAT RESTRICTIVE MEASURES SHOULD BE EMPLOYED TO PREVENT THE INFECTION OF SUCH YARDS WHICH SO FAR AS POSSIBLE SHALL NOT BURDEN TRAFFIC.

By J. S. McFADYEN,

General manager of the Pittsburgh Union Stock Yards.

GENTLEMEN: I see that I am on the program to suggest methods as to what restrictive measures should be employed to prevent the infection of public stockyards, so far as possible, for the sole purpose

of benefiting the public at large without increasing the burden upon a traffic that is standing all the load that it can carry.

When infection is brought into a public stockyard and a quarantine is established, traffic and the public at large suffer an enormous loss, due to a general stagnation in the live-stock industry, affecting the breeder, the feeder, the shipper, the packer, and the general public, and a general depreciation in values follows which naturally brings about a decided increase in the cost of the finished product.

No doubt you all have friends—I know I have—who have lost enormously in the past two years—in fact, have been put out of business because of infection carried in public stockyards, closing the channels of trade through which the live-stock traffic is handled.

We have passed through two years of strenuous times, in which quarantines have been established, an immense amount of work has been done, and an enormous amount of money has been expended. We have accomplished a great deal, and to-day we are practically free of the foot-and-mouth disease. During this period I have given this question considerable thought, and the possibility of car infection has concerned me so forcibly that it appears to be one of the most important matters that could be taken up at this time.

To give you an idea, the Pittsburgh Union Stock Yards is likened unto the hub of a wheel, the spokes representing the markets of Cincinnati, Indianapolis, Louisville, Dayton, Cleveland, Chicago, Kansas City, South Omaha, Sioux City, and St. Paul. All live stock that is transported from those markets to the Atlantic seaboard over the Pennsylvania lines is unloaded, fed, rested, and watered at Pittsburgh; so you can readily see that the Pittsburgh Stock Yards are subject to reinfection should there be any infection in the above-mentioned public stockyards.

On the 1st day of November, 1914, the foot-and-mouth disease was discovered in the Pittsburgh yards, and we were compelled to clean and disinfect under the supervision of the Federal and State veterinarians. Personally the veterinarians in charge of this work are a fine bunch of fellows, but speaking from a business standpoint we stockyard men think they are a very severe lot of masters.

On January 11 the Federal inspector in charge at Pittsburgh notified me that a shipment of live stock had passed through the Pittsburgh yards and that the foot-and-mouth disease was discovered in that shipment at destination. We were quarantined and again compelled to clean and disinfect, and were declared free on January 16.

Everything went along smoothly for a period of about ten days, when on January 26 there passed through the Pittsburgh yards another shipment of live stock that was found to be infected when being slaughtered at destination, and once more we were compelled to clean and disinfect the premises.

After being declared free on January 31 there was another outbreak on February 6 which lasted until the 16th. From that time we had no interruptions until May 24, when a shipment of hogs went through Pittsburgh, and while being slaughtered in Philadelphia three of the hogs showed lesions in the mouth. This again necessitated our going over the work once more. At the point of shipment this consignment of hogs was inspected by the State and Federal inspectors. From the time the hogs were placed on board

the cars until they were slaughtered a period of approximately three days elapsed, and as I understand it from the authorities, the foot-and-mouth incubation requires from 12 hours to 24 days to develop; so there is still a doubt as to whether or not these hogs were free from infection at the point of shipment, or whether they became infected in the car.

There happened to be some test animals in the Pittsburgh yards at that time, and immediately upon being notified of the infection which had been discovered in Philadelphia we placed all of our test animals in the pen in which these hogs had been fed, rested, and watered, and that section of the yards was quarantined. After holding these test animals in this pen for a period of 30 days without developing any symptoms of foot-and-mouth disease, the Federal Government released the quarantine from this portion of the yards. This demonstrated without a doubt that the Pittsburgh yards were not infected; so it is still a mystery, as I have said before, whether these hogs were infected before they were shipped, or whether they became infected in the cars. Therefore I say that if cars transporting live stock were cleaned and disinfected it would aid the Federal Government and State live-stock sanitary boards very materially in locating the source of infection.

We will take, for example, the States of North Dakota, Montana, and Minnesota. These States have regulations that are practically model regarding the movement of live stock, and the work is handled by some of the ablest men in the profession, and fully financed; but there is one exception—they fail to embody the cleaning and disinfecting of the cars that handle live-stock traffic. The existence of hog cholera throughout the States mentioned is sufficient evidence that the regulations established have been of no great benefit, as the percentage of hog cholera is just as great in these States as it is in the hog-producing States. I do not intend to criticize any of these gentlemen in any way, but merely to emphasize the fact that infection, regardless of such regulations, continues to spread broadcast over the territories.

During the year 1908 the foot-and-mouth disease appeared in Pennsylvania, Michigan, New York, and Maryland. During the years 1914 and 1915 the infection was the most widespread that we have ever had in this country; and, to my way of thinking, the only way to prevent this infection is to clean and disinfect all cars handling live-stock traffic in the course of transportation.

As an illustration, outbreaks of hog cholera in Canada are spasmodic and are confined to limited areas. In my opinion this condition is due largely to their splendid organization in enforcing the cleaning and disinfecting of cars transporting live stock.

If I am not mistaken, the Canadian Government compels the cleaning and disinfecting of all cars handling live stock, so, possibly, the cleaning of these cars may have a great deal to do with keeping Canada free from infection, which, as you no doubt know, has cost our country a fabulous sum of money.

If the Federal Government and State live-stock sanitary boards were to cooperate and adopt the same methods that our Canadian cousins are enforcing—that is, in cleaning and disinfecting cars transporting live stock, and also the supervising of the cleaning and disinfecting of public stockyards—and with the able organization

that the Federal Government and the various States have, I believe we would not have the constant reinfection that we have been forced to contend with heretofore.

Being a layman, I do not feel confident to outline a program that would cover this matter, therefore I will turn it over to the able heads who are present to-day. But, in conclusion, I venture to assert that there is no matter more important that could be called to your attention in this conference than enforcing the cleaning and disinfecting of public stockyards and cars handling this traffic, in order to prevent the infection of the foot-and-mouth disease, as well as other diseases, being carried broadcast. The obliteration of this danger means protection to all concerned. [Applause.]

DISCUSSION.

Mr. VROOMAN. There will now be an opportunity for discussion on any point raised in the paper which has just been read, if anybody cares to speak.

Mr. MUNN. May I inquire from the gentleman who has just spoken what the present requirements or regulations are—either State or Federal—relating to the disinfection of stockyards, if any?

Mr. McFADYEN. There is nothing, as far as I know.

Mr. HENRY WALLACE. May I ask, Mr. President, has the Government the power to require the disinfection of all cars engaged in interstate traffic?

Mr. VROOMAN. I think it has.

Mr. WALLACE. Does that power come by act of Congress or by regulation?

Mr. VROOMAN. I will ask the Solicitor.

Mr. CAFFEY. By regulation.

Mr. MUNN. Inherent in the Constitution?

Mr. VROOMAN. I think so. Is there any further discussion on this point?

Mr. DAVISON. I live in West Virginia. I am a farmer. I have been in the cattle business all my life. In regard to this cleaning of cars, we had a little of this foot-and-mouth disease in Berkeley County last January. They cleaned cars at the railroad switch. A farmer took his cows to the water near by and they took foot-and-mouth disease. We had quite a time getting rid of it. We pay for the cleaning and disinfecting of these cars in West Virginia. We shipped cattle out of Harrison County two weeks ago and paid the company for disinfecting the cars at Parkersburg. We were glad to do it. Foot-and-mouth disease raises the hair on a man's head if he is in the cattle business every time you speak of it. [Applause.] And why should it not affect the hair on the heads of the consumers as well as the farmers? I regard this as the greatest menace to the live-stock industry of the country that has ever struck it. There should be no haggling about this thing and that connected with it. Get the country clear of it at any cost. Who is going to do a little haggling about whether they are ordinary cattle or the pure-blood dairy herd of cattle owned by the Durands in Illinois? I went to a conference at which we got out a live-stock bill. We got the bill by the house of representatives, right to the senate. A lawyer from Greensboro got up and asked to table that old farmers' live-stock

sanitary bill. When I got up in defense of this bill I had statistics and read them and told these people what foot-and-mouth disease would do. They didn't know anything about it. It was a new thing. We paid full value—actual true value—for all this live stock. [Applause.]

Mr. SPANN. I would like to ask how long it takes the Government to effect a quarantine of stockyards when they find these conditions?

Mr. VROOMAN. When they discover that it needs a quarantine? How long does it take, Dr. Mohler?

Dr. MOHLER. The local man does it very quickly. Before a Federal quarantine can become effective it is necessary to get out an order. That may consume 24 hours or longer.

Mr. SPANN. If you can not quarantine a stockyard for probably 48 hours, and allow them to ship disease all over the country, does it do very much good to have laws to do that? The reason I asked that, I was before the Agricultural Committee in Washington on this very question. I had cattle in the National Dairy Show. We were not allowed to ship, but they shipped disease all over the United States, and when I brought up this question Dr. Mohler and your attorney stated that it took some formalities—48 hours—that you couldn't quarantine when the disease appears.

Mr. EMBRY. The question came up, and I would ask you to express yourselves on who should pay for the disinfection of the cars—the railroad company, the Government, or the State. I would like to have you answer that.

Mr. VROOMAN. Dr. Mohler?

Dr. MOHLER. I believe the next paper on the program will cover that very question. Mr. Tomlinson has a paper on this subject.

Dr. BRADY. The gentleman (Mr. McFadyen) stated that they put stock in the pen for 24 days and they did not get infected. It is very clear that foot-and-mouth disease did not exist there. If they were 24 days in the same pen it could not be infectious. Why not handle it on farms and put it on trial, and that would save a great deal of the trouble at stockyards and cars?

Mr. NEWMAN. I want to emphasize the paper that the gentleman read, that the Federal Government is the authority to require the disinfection of the car. Congress should be petitioned by everybody here to give them that power. [Applause.] I am speaking not in regard to foot-and-mouth disease particularly. In Kentucky where we require the cleaning of the stockyards thoroughly under Federal supervision, where we compel live stock to be shipped in clean and disinfected cars, the saving on hog cholera alone was estimated at \$1,700,000. We have not the blackleg in Kentucky that we had before. We have not the shipping fever and catarrhal fever. I want to say, in justice to the owners of the stockyards, that they didn't know what filthy places they were until we got after them in this foot-and-mouth outbreak. There were corners of the Bourbon stockyards that the managers had not seen in 20 years, and there was some of the dirt that the Union soldiers left there when they were there.

There is but one thing to do on this subject when the live-stock industry has reached the importance that it has in this country, when the markets are brought right to our doors, when traffic to Chicago is just as convenient as from Louisville, Ky., to the main portion of

the State; that is for the Federal Department of Agriculture to say to Mr. Live Stock Man, Mr. Commission Man, "Not a head of these animals move until you clean up so you won't take one of these contagious diseases into a territory that has not known one of them for generations." [Applause.]

Every case of foot-and-mouth disease that we had in Kentucky came out of Chicago [applause], and as chairman of the Kentucky board I am here to say to you that we have not let a cloven-hoof animal enter from Illinois, and not one is going down there until you people eradicate that foot-and-mouth disease in Illinois. [Applause.] You have a lot of weak-kneed people on the job. I have been up against it. They put me out of business in Kentucky because I put foot-and-mouth disease down. I want to indorse the gentleman's paper absolutely, and say that no live stock should be allowed to be loaded into a filthy car any more than when I get out of a berth coming into Chicago some other fellow should go in without a change of bed clothing. Our live stock are entitled to move in clean quarters and arrive in that way when they reach the stock-yards. [Applause.]

MR. CUNNINGHAM. Speaking about disinfecting cars, we understand that the litter put into these cars should be thoroughly disinfected. I am from Wisconsin. Of course we were quarantined up there last winter. I was at the Milwaukee stockyards, and 175 cars of hogs were shipped in there from northern, western, and central Wisconsin. The inspectors ordered that these cars be disinfected, but there was no litter. The Federal officers ordered the depot men not to load cars with litter that had come in contact with live stock. Now, if this litter were thoroughly disinfected you could always have clean cars. I contend that a great deal of this disease is transmitted by the flies. Where we have been infected, it was found to be brought by sheep that were shipped from Missouri and Texas. One of your Federal officers, a veterinarian from Washington, a Dr. Ditewig, was called to look over a portion of the country badly affected with lungworms. It was in a ravine, where the farmers had permitted the horses, cattle, etc., to pasture right around there. He found that these insects were inside and outside the intestines, and the first thing he did was to order these people to disinfect these stagnant pools and spray these cattle and horses; and they did, and eradicated the disease. Up there we spray our cattle, sheep, and hogs. At the State fair the State officials or Federal veterinarians were ordering the people under them to disinfect the cars and the litter; and if they will do this and spray cattle with a good disinfectant twice a week, as I do, we won't be liable to have this disease. This is the thing we are going to adopt.

MR. J. BROWN. It occurs to me that this meeting is somewhat of importance with reference to legislation. If the country or the State required disinfection of all cars under all conditions, that would impose a tremendous expense upon the man who ships, and burden the railroads of the country unnecessarily. It is impossible to have Asiatic cholera if it does not come from Asia. It is impossible to have foot-and-mouth disease unless there is foot-and-mouth disease. Therefore, under conditions where there is no disease in the country, it would be a hardship upon the people for legislation to impose universal expense where there was nothing to be afraid of. If we should

need legislation, we should act with some degree of moderation and not force unnecessary legislation where it carries with it enormous expense. I think all these things should be restricted to the necessities of the case.

Mr. SPANN. How long does it require to put a quarantine on a stockyard? It doesn't make any difference how much you disinfect cars when you ship out the disease. You have to change this thing. You have not the authority now. You have to go to Congress and get authority to put it on at once. We all know they shipped out 400 cars infected from Chicago.

Mr. VROOMAN. It does at the present time take 24 hours, and any suggestion that will enable us to cut down that time will be welcome.

Mr. SPANN. Would it not be important?

Mr. VROOMAN. Yes.

A MEMBER. We should go before Congress and get that done.

Mr. VROOMAN. We are not going to offer a resolution, but if anybody wants to get the stockmen to do this it would be all right.

Mr. WELCH. It may take 24 hours in some places, but it does not in the Buffalo stockyards. Dr. Wende can call up a representative of our stockyards, and the quarantine is on in two minutes. He receives confirmation from Washington over the wire, and we have men cleaning up the stockyards within a half-hour.

Mr. EDWARDS. Our inspector in charge at Cincinnati has always taken authority to quarantine us.

Dr. MARSHALL. It seems to me that that is up to the State. In Pennsylvania we can quarantine a stockyard as easily as to quarantine an animal infected. We can do it instantly. The local appointees have authority to place a quarantine on anything where they consider it necessary to keep down the spread of disease.

Mr. MUNN. I want to know if the Federal authorities have not that power?

Dr. MOHLER. Some preliminary steps have to be taken. The Solicitor has the law here.

Mr. CAFFEY. The law requires notices of the quarantine to be published in newspapers and served on the carriers. Of course, if people give in to it, as is generally done at the principal stockyards, it can be effective at once. We telegraph these notices out to the newspapers.

A MEMBER. Did you do that at Chicago?

Mr. CAFFEY. We did not in some quarantined districts; but to make the quarantine legal, in order to be able to prosecute anybody for violating it, we must send out notices to the newspapers. The delay in getting the quarantine into legal operation results from the requirements of the law that notice be published in the quarantined district. I imagine that the reason that Congress required notice was so that people might know that there was a quarantine; otherwise prosecution for violating something that amounts to a law, without knowing that it existed, would occur, and that might be unjust. I don't think Dr. Mohler said it always requires 48 hours. These informal quarantines which people agree to are readily put on. I think Dr. Mohler was talking about the legal quarantine which we could enforce. Section 1 of the act of March 3, 1905, reads as follows:

That the Secretary of Agriculture is authorized and directed to quarantine any State or Territory or the District of Columbia, or any portion of any State

or Territory or the District of Columbia, when he shall determine the facts that cattle or other live stock in such State or Territory or District of Columbia are infected with any contagious, infectious, or communicable disease; and the Secretary of Agriculture is directed to give written or printed notice of the establishment of the quarantine to the proper officers of railroad, steamboat, or other transportation companies doing business in or through any quarantined State or Territory or the District of Columbia, and to publish in such newspapers in the quarantined State or Territory or the District of Columbia, as the Secretary may select, notice of the establishment of quarantine.

Mr. HAGENBARTH. Are we to understand that this meeting is not to consider any resolutions?

Mr. VROOMAN. Yes, sir.

Mr. HAGENBARTH. Don't you think that would be a serious mistake? The average farmer or the average live-stock association is not as well qualified mentally to pass on these things as the men who are experienced in this particular thing, who are here to-day, and who know what the country wants. I think it is just what the man alongside of me said a minute ago, that what is everybody's business is nobody's business. I think we have here the most eminent authorities we can get. You have with you the solicitor, the vice president of the National Wool Growers' Association, and Mr. Tomlinson; and I don't think you are going to get a better array of talent to discuss this thing. Nothing is worth while unless it is made effective, and I think we will make a mistake if we do not put into the hands of our friends the weapons that will enable us to wage warfare against the things that now prevail. I believe that Congress will listen to any resolution brought before it by this meeting, and we can state in our preamble that we are qualified to pass on this. I would like very much to have the chairman consider resolutions. There are two or three resolutions that I think should come from this meeting. I would like to mention one now, to impress upon the chairman and the members of this meeting something that is going to destroy anything we could do here toward defeating disease and promoting the live-stock industry. I refer to the proposition that is now on foot to remove from the office of Chief of the Bureau of Animal Industry a man who is particularly and specially qualified for that position, and placing it in the hands of politicians. We should have a resolution placing ourselves on record to keep the Department of Agriculture out of politics. We do not want to turn that over to the spoilsman, and I think we are qualified to speak. [Applause.]

Mr. MURPHY. I feel naturally timid as a stockyard man to get up here to say anything. From the talk of Mr. Newman, of Kentucky, stockyards should be put out of commission. There is a very salient point I wish to take up. It was stated by Mr. McFadyen. Stockyards afflicted with the disease did exactly as he did. He said he put that test herd in the same pen that this stock in transit was fed and watered in for 24 days, and, notwithstanding that, no results were shown. There was one point. Mr. Newman said a great deal about dirt, but dirt is as you make it. I submit that stockyards dirt is not unhealthy dirt; and I wish to ask if any gentleman here will tell me where they have found an initial case of foot-and-mouth disease in any stockyards in the United States. Dr. Newman says the stockyards men make all the money; but we are always ready to play fair with the other fellow. All we ask is a fair, square deal.

We all have the same end in view. I am not criticizing at all what the chairman said about the work of the Bureau of Animal Industry. It is almost miraculous as compared with other countries. It took England three years to wipe out this disease. Germany, the most thorough country on earth, can not wipe it out. In this country, with the exception of the State of Illinois, we wiped it out in less than a year; but there were requirements in force last year that were not uniform, and there were some that could be modified without in any way affecting the efficacy of the work of the Bureau of Animal Industry. We are with you in wiping out this disease. We realize that it is the greatest catastrophe to allow this disease to go unchecked.

MR. MUNN. Perhaps I ought to make my position clear. I want to say I am not identified with any stockyards, but I understand the situation, and I want to indorse most emphatically the announcement of the Secretary that resolutions should not be made. We are here to discuss methods by which the efficiency, which we consider is splendid now, in the department at Washington can be improved. We are not here to injure any one branch of the industry by hasty or ill-considered resolutions. You can not consider any resolution which might reach into many ramifications. Therefore I say our honorable Assistant Secretary has most wisely taken the stand, and I hope he will adhere to that stand.

I am much interested in this question as to the ability to place immediate quarantine on places where this disease may appear, namely, stockyards. I do not understand the law just read. You place the quarantine, and immediately it becomes effective. You quarantine first and give your notice afterwards that the people may know of it? Am I correct in that?

MR. CAFFEY. We do that. We get the quarantines out as quickly as it is possible to prepare them; but they can not be effective for the purpose of basing prosecutions on them until the notices required by the statute are given.

MR. MUNN. Of course, a discussion between lawyers is entirely unnecessary in this gathering; but it does seem to me that the language here is quite clear that the department has authority, where the place quarantined is an instrument in interstate commerce, to place the quarantine at once. It seems to me that the language is very clear. As to whether or not you could prosecute afterwards where the person had actual notice is quite immaterial. I take it that anybody who is quarantined is going to have respect enough for the Government, regardless of the technical language of the notice. The quarantine on that place is effective and can be made effective immediately in so far as concerns those who had notice of it, namely, the manager of the stockyards. When you notify him you give him the notification.

DR. MOHLER. The reason that the gentlemen from Buffalo, Cleveland, and Pittsburgh referred to the immediate quarantine of their respective stockyards is the absolute cooperation that we have had in the States of New York, Pennsylvania, and Ohio. Our men are often deputized as State officials and they then could quarantine immediately, the quarantine by the State taking effect at once, but the Government quarantine had to go through the steps explained

by the solicitor. Now, in Mr. Spann's statement he referred to the dairy show herd quarantined on the 29th. The quarantine of this herd by the Government was not until the 31st. The quarantine Mr. Spann mentions was not by the Government, but by the State of Illinois.

Mr. EMBRY. We would not get away from here in two weeks if we discussed every point. I think it would be a good idea to discuss only the paper just read.

Mr. VROOMAN. The point is well taken.

Mr. MERCER. I would like to ask whether or not a Federal inspector in charge at his station, or any inspector of the Bureau of Animal Industry, has not authority to place a quarantine without authority from the Chief of the Bureau of Animal Industry?

Dr. MOHLER. The Secretary or Acting Secretary of Agriculture solely has that authority.

Mr. MERCER. Then, I understand by that that an inspector in charge, or any inspector of your department, knowing that a disease existed or that some herds were infected, would not have any authority to take any action until he got authority from the Secretary of Agriculture?

Dr. MOHLER. The law specifically says that.

Mr. NEWMAN. I want to make myself clear. The gentleman that represented some stockyards seems to have misunderstood me. What I said was no attack on the stockyards people at all. I want to say frankly that in eradicating this disease I believe that the stockyards and the railroads have cooperated more efficiently by far than the farmer has cooperated. [Applause.] My point was this: They are interested along with the farmer, and if they don't get sufficient funds in the way of commissions and charges in handling live stock now, they ought to get more so as to provide better quarters. I don't want to intimate that I am antagonistic to these people, however, for I believe that this is a large family made up of different units, and we have all got to pull together in order to succeed in controlling these diseases.

Mr. VROOMAN. We shall have to proceed with our program. There is no program on for to-night, and if any set of men want to get together and make up some resolutions, while you are here on the spot, to-night is your time to do it. Different associations can meet and resolute to their hearts content, and I have no doubt that much good would be effected thereby. But this meeting was called with a certain policy in view, and that policy is going to be strictly adhered to. [Applause.]

We have the pleasure of hearing next from Mr. Tomlinson, of Denver, the secretary of the American National Live Stock Association.

WHAT SHOULD BE DONE TO IMPROVE THE CONTROL OF CLEANING, DISINFECTION, AND MOVEMENTS OF STOCK CARS USED FOR ANIMALS ORIGINATING IN QUARANTINED AREAS?

By T. W. TOMLINSON, *Secretary American National Live Stock Association.*

Mr. Chairman and gentlemen of the convention, I am a good deal like the man who could not make a speech and who was asked to respond and said he couldn't talk, but would sing a song or dance

a jig, in the sense that the subject assigned to me is one that I have very little to say about. However, there are some correlated matters connected with the cleaning and disinfecting of cars, which I do desire to say a very little about.

The American National Live Stock Association, of which I have the honor to be secretary, in conjunction with the National Wool Growers' Association, practically represents the producing end of the live-stock industry. We are grateful, Mr. Chairman, for your calling this convention. We are appreciative of the efforts of the Bureau of Animal Industry and the entire Department of Agriculture and the different State live-stock sanitary boards, for the very efficient methods taken to control this great scourge. We have always stood with the Department of Agriculture, and we have never seen any reason to change our attitude. You have helped the live-stock men in many ways. We feel that were it not for the Bureau of Animal Industry the foot-and-mouth disease would be still present in a more alarming condition than it is to-day.

I thought as I was sitting in my chair that if the few remarks that I desire to make were not made pretty soon, some of the extemporaneous speakers who were talking on various topics would have said all that I want to say. I hope the other speakers will not be similarly confronted by the haphazard talkers taking away all their ammunition.

You perhaps all know that in the quarantined area live-stock cars were cleaned and disinfected under the regulations of the department promptly upon the detection of the disease. An attempt was made, as I understand it, by the bureau to locate all cars that had been in the infected areas and to have them cleaned and disinfected. In that undertaking there had to be thorough cooperation with the railroads. However, there were some cars that escaped them, and in order to catch them all, they passed an order effective, I believe, February 17, 1915, compelling the cleaning and disinfecting of all cars handling live stock moving interstate in the entire country. That resulted in quite a general cleaning up of all the live-stock cars in the West. In fact, most of the cars used in interstate traffic had already been cleaned and disinfected at the big central markets, but there were a few scattered cars that had not been cleaned, and the order was aimed particularly at those. It resulted in a great many supposed cleanings being made on the range. It was not of any great expense to the railroads, and finally they decided along about May that they would make a charge for that cleaning and disinfecting; and relying upon a New Orleans decision, which was scarcely a case in point, they established a charge of \$2.50 per single-deck car, and \$4 per double-deck car, for the cleaning and disinfecting of cars. That went into effect in all the interstate territory of the West, the clean territory, the territory where no foot-and-mouth disease had ever existed, no suspicion of it having been there, where there was no exposed area—absolutely clean territory. It made the rangemen pay an extravagantly high price for the cleaning of cars which were moving in the clean territory. Mind you, cars could not get out of the quarantined or exposed area without being cleaned. When they got into clean territory, we felt there was no occasion for assessing this unusually high charge for cleaning cars which were in themselves clean and in clean territory. Therefore, after the charge had

been in effect about a month, and feeling it rather burdensome, we applied to the Bureau of Animal Industry for a modification, assuring them that we thought every live-stock car in the country had been cleaned sufficiently several times, and that there was no occasion for tacking onto the stockmen or the railroads this additional expense and inconvenience of cleaning and disinfecting cars in this clean area. Effective July 15, 1915, if I recall rightly, the bureau revoked its former order, and there is now no necessity of disinfecting cars in the clean territory of the West.

I believe, however, and it is the sense of the officers of our association, that there is great merit in the cleaning and disinfecting of all stock cars going into the central markets. I am disposed to agree with the gentleman from Pittsburgh that most of them should be cleaned. In fact, they ought to be cleaned going into the central markets. And speaking for the association I represent, and I believe for most of the producers of the West, I am willing to state that the stockmen are disposed to pay the actual additional cost of the disinfectant and the labor of applying it to these stock cars going into these central markets. We don't want to pay any exaggerated amount for that work. Indeed, it is said by some of the range people who had occasion to disinfect hundreds of cars that 100 cars were cleaned and disinfected by a couple of men in a day, and the expense was somewhere around \$500 to the shipper, while the actual expense to the railroad was a fraction of that amount. I expect before I leave Chicago to have a conference with the railroads on this very proposition. We have taken up with the leading live-stock agents of the different lines the question of agreeing with them upon a reasonable amount for the cleaning and disinfecting of all stock cars going into these central markets. I don't mean every stock car that moves between a local point in the range country or in the West, but cars that go into the great central markets. We are willing to make such an arrangement for the large benefit that will accrue to the stockmen, not only from the prevention of the foot-and-mouth, but from other contagious diseases which have been so well referred to.

In a case recently tried by our association, involving an advance in live-stock rates, one of the big carriers filed an exhibit showing the actual cost of the labor involved in the cleaning and disinfecting and bedding of stock cars. It was one of the big trunk lines running into Chicago. The statement showed that the cleaning cost 20 cents per deck, disinfecting 15 cents, and sanding 10 cents, a total of 45 cents. It is generally understood that the railroads rest under the obligation to furnish a clean car, and in some territories they furnish and bed it. In recent years, unfortunately, they have been tacking on little charges here and there, such as charges for bedding, etc., so that it has gotten rather burdensome. We, however, are prepared to meet them more than half way, and we will stand the actual cost of the labor and the disinfectant involved in the disinfecting of cars, and we don't believe that amounts to over 50 cents a car. They can exaggerate these expenses, look at them through a magnifying glass, and probably figure that the cost of movement of a car and for the supervision amounts to more than that. They are supposed to clean a car, and the additional cost of disinfecting will not, I believe, run over 50 to 75 cents a car, and that the producer is willing to stand,

and the railroads should be glad to meet us on that basis. Indeed, they should be extremely glad to stand half of it. I will be very pleased to have the conference with those who are sufficiently interested on that subject to express themselves on the desirability or efficacy or wisdom of having all these cars going into the central markets cleaned and disinfected.

I think other cars should be cleaned and disinfected. I refer to the packers' cars and other cars, railroad equipment, that carries imported hides or imported meats. They should be as carefully cleaned and disinfected as our own cars—indeed more so, because I think they are possibly a more fruitful and fertile source of infection than our present stockyards. So far as I know it has never been determined where the last foot-and-mouth outbreak arose. My guess is perhaps as good as anyone else's, and I firmly believe that it might have come through infected animal products or meats from some of the countries where the foot-and-mouth disease prevails.

Before I leave the platform I intend to offer to this conference a resolution on this very important matter. It is a question which has received the careful consideration of the American National Live Stock Association and all the important local live-stock associations throughout the West. The National Wool Growers' Association, of which Mr. Hagenbarth is the distinguished president, has passed on it. What I present to you represents the official announcement of the attitude of the producers of this country on this very important matter. With your permission, Mr. Chairman, I will read the resolution which I desire to offer to the convention.

Mr. VROOMAN. We shall be glad to hear the resolution, but it will not be put to a vote. We are not going to pass any resolutions, but we shall be glad to hear your ideas.

Mr. TOMLINSON. The resolution, gentlemen, is as follows:

Whereas this country has suffered from a most serious outbreak of foot-and-mouth disease, which has already been the cause of enormous financial loss to our live-stock industry, and measures to control and eradicate said disease have been of great expense to the Federal and State Governments; and

Whereas in every instance where said disease has appeared in the United States investigation has proved that it was brought in from some foreign country, and in the present outbreak grave suspicion is directed toward animal products that have been imported from Argentina, where the foot-and-mouth disease is prevalent; and

Whereas the importation of dressed carcasses of animals, hides, wools, and other animal products from Argentina, Australia, or any other foreign country where highly infectious diseases exist, is a grave menace to the live-stock industry of the United States: Therefore be it

Resolved, That this conference relative to the foot-and-mouth disease, held in Chicago November 29 and 30, 1915, vigorously protests against the importation of dressed meats, hides, wool, and other animal products from countries where dangerous infectious diseases of animals exist; and be it further

Resolved, That we petition the honorable Secretary of Agriculture to adopt such regulations as will serve to close the channels through which such diseases are liable to be carried into the United States from foreign countries.

One of the important duties of this conference, as I understand it, is to devise ways and means for the control or the prevention of infectious diseases, such as the foot-and-mouth disease. It seems to me that it is incumbent upon this assemblage of distinguished gentlemen that they should announce their position on this very important question. It is not the policy of any party. No party would

stand behind the imputation of contributing to bringing in a disease that has already cost the country fifty to one hundred million dollars. It is a question of how to prevent a recurrence of that disease, and we think and honestly believe that the importation of animal products from countries where that disease exists is the most fertile and fruitful source of this infection. I therefore have the honor to move the adoption of this resolution, and I should like to hear from any others in the audience who care to talk upon it, apologizing, Mr. Chairman, for my seeming impertinence in forcing this issue upon you.

Mr. VROOMAN. The gentleman is out of order. We are delighted to hear his remarks, but his resolution is entirely out of order. No such resolution will be entertained by the chair. [Applause.] If we were to allow such resolutions, there would have to be a resolution prohibiting the importation of anything from any foreign country. That would be the only way that we could be absolutely sure of accomplishing the object he has in mind.

Mr. TOMLINSON. It does not necessarily follow.

Mr. VROOMAN. The gentleman has had his guess as to what has caused foot-and-mouth disease. Now discussion will be in order on the paper just read.

Mr. HAGENBARTH. I would like to ask the chairman from what source the good to be derived from this conference is to come? What is the idea?

Mr. VROOMAN. The idea is an exchange of information upon the problems under discussion; and everyone here will learn something, it is to be hoped, from the deliberations here to-day. The information that we gather here we expect to utilize in all our future work. The Federal Department of Agriculture is going to take the records of this meeting and go over them carefully—study all the points covered here—and we expect the addresses made here to have very wide publicity throughout the country. We expect the men from the various States and various business organizations to go back and report on the work of this congress, and we expect various organizations to appoint committees to take up the work where we leave it off here. Committee work is the effective work in Congress and in practically every other place in the world where you have expert workers. If the association which is represented by the last speaker will appoint a committee to draft a memorial to Congress and to confer with us in Washington, we shall be glad to confer with the committee, and as a result Congress may be able to take some effective action. There are a thousand channels through which the good ideas gathered here to-day can find expression all over this country. I do not pretend to tell you all of them. A little use of the imagination can make any one of you think of some that I can not think of. The idea of resolutions was carefully gone into, as well as a good many other points. The Department of Agriculture called this conference for a specific purpose, and it is going to be carried out along the line determined by the Department of Agriculture. That is final [applause], and I do not care to discuss it any further. It is not a subject for discussion, and any further discussion is out of order.

Mr. HAGENBARTH. It seems to me that you are about to defeat one of the purposes.

Mr. VROOMAN. It may seem so.

Mr. WILSON. Gentlemen, the order of the chairman has decided this matter, and there is no use of discussing it.

Mr. VROOMAN. If the gentleman desires to speak on the paper just read, he is entitled to the floor.

Mr. HAGENBARTH. Before the point of order is disposed of entirely, there are two points, three points, that come up in that connection.

Mr. FRENCH. The papers should be discussed in the order in which they were brought up. The gentleman put up a very good paper and confined his remarks to the subject, and I think that any gentleman who attempts to inject any foreign matters is defeating the purpose of this conference.

Mr. HAGENBARTH. It seems to me that the courtesy should be granted even on the question of the point of order.

Mr. VROOMAN. We are not going to discuss the point of order, and if you are not going to discuss the paper just read I will recognize Mr. Wilson, of Illinois.

Mr. HAGENBARTH. He makes the statement as to how foot-and-mouth disease was introduced in this country. It is presumed that when you invited him here you wanted to hear him, and that you invited me here and wanted to hear me.

Mr. MUNN. The point of order has certainly been ruled upon.

Mr. VROOMAN. After we have discussed the questions on the program, we will take up the question that the gentleman wants to discuss, but the question now properly under discussion has the right of way, and we are going to proceed with the regular order of business. There will be time for discussion of all other questions in the evening, when there is no regular program.

DISCUSSION.

Mr. WILSON. I was very much interested in the paper that the gentleman just read in regard to the cleaning and disinfecting of cars. As a small feeder and shipper in Illinois, it seems to me that there ought to be some uniform action taken in regard to this matter. Now, \$2.50 is too much for the cleaning of a car; entirely too much. In one week, in a community of 2,000 inhabitants, we shipped out 100 cars of stock, and the feeders there were compelled to pay \$250 for the cleaning of cars that didn't take very long. Another thing: It seems to me that the railroad should be compelled to clean these cars that the stock has been shipped in. We have cars that contain from 4 to 6 inches of filth. It seems to me some regulation should be made along that line. I just suggest these points in passing. [Applause.]

Mr. ADKINS. I understand that the Department of Agriculture wants some suggestions. I think the gentleman from Ohio hit the nail on the head when he said we could go to unnecessary extremes in this matter, both in cleaning and disinfecting stockyards and cars as well. The conditions in the stockyards compare very favorably with the average barnyard of the stockmen through the country. [Applause]. It seems to me that it would be a very unwise thing to defeat the policy by going to the extreme and keeping the stockyards like a parlor and the stock cars like parlor cars. The more this is done, the more the consumer has to pay in the end. So long

as they are in a sanitary condition and no infectious diseases are brought into the land, we need not go to unnecessary extremes. So far as disinfecting against hog cholera, there is no use in that, because while we are doing that there is a fellow out in the country shipping out serum, loading up the country with cholera. We do not pay much attention to hog cholera, because where we ship it into stockyards we never ship it out alive again. It seems to me in a time like this due care should be taken to disinfect all cars and places where stock of that kind may be located and shipped out again and cause a great deal of trouble, and I think our officials should use a great deal of discretion in seeing that sanitary conditions are maintained. I think we should take ordinary precautions, but not go to extremes.

MR. VROOMAN. We are fortunate in having present with us Dr. Torrance, of Canada. I should like to call on Dr. Torrance for a few remarks on the methods in Canada and the prevailing prices.

DR. TORRANCE. Mr. Chairman and gentlemen, I am very glad to be with you and to have this opportunity of saying a word or two as to the system which has been in vogue in Canada for several years in dealing with this particular question, the disinfection of stockyards and stock cars. This system was inaugurated by my distinguished predecessor, Dr. Rutherford, and has been working very smoothly.

The department of agriculture maintains a staff of car and yard inspectors, whose duty it is to see that all stock cars entering the large centers are cleansed and disinfected before leaving. In each of these centers the railway company maintains a cleaning depot to which all stock cars are sent. At these depots the necessary facilities are provided for disinfecting and cleansing, and after the cleansing has been completed the inspector of the department attaches to each car a certificate over his signature, giving the date on which this car has been disinfected. A similar system is carried out with regard to all the stockyards in the country. Our inspectors visit these yards from time to time and notify the railway company of any yard which requires cleansing and disinfection. And I may say that it is a practice over there to have all these stockyards lime washed once or twice a year. We are not satisfied to have them as clean as the ordinary farmer's barnyard; we expect to have them a great deal cleaner.

We have found that this system has been working satisfactorily for many years, but during the past year the railway companies thought it might be possible to put the expense of this work upon the shipper. They approached the railway commission and obtained permission to charge 75 cents per car for the cleansing and disinfecting. This charge has not been imposed with the consent of the shipper, and some objection has been made to it already. It has only recently been imposed, and one of the large live-stock associations of the West has already passed a resolution asking to have this charge withdrawn. Up to the present time, until the railway commission passed this regulation, the railways were obliged to pay this charge themselves. It has been shown that the disinfection and cleansing can be satisfactorily carried out for a charge of 50 cents. The additional charge of 25 cents is justified by the railroads on the ground that it covers the expense of switching the cars to and from the cleansing station.

In the health of animals branch we have no doubt that the cleaning and disinfection of the stockyards and cars has had a very great effect in helping us to control contagious diseases. As the reader of the first paper said, we are not much troubled with hog cholera in Canada, except a few isolated outbreaks here and there, and we think that a large part of our immunity from that disease comes from the fact that all these cars are very carefully disinfected. I would very much like to see similar regulations in force in your country. The interchange of traffic between the United States and Canada makes us vitally interested in what you are doing over here. Your stock cars come into our country, ours go into yours, and if it could be possible to have an efficient system of cleansing cars on both sides of the line I think it would be to the mutual advantage of both countries. [Applause.]

A MEMBER. I think that is one of the things our Agricultural Department could follow. I ship cattle in England, and every car that is furnished me to ship cattle is whitewashed like a newly whitewashed barn and looks like something that is clean.

MR. EMBRY. Do you think that could come under the head of the Interstate Commerce Commission?

DR. MARO. There is one question that has been brought up in connection with modifying quarantine regulations that it seems to me is a very important one. I am not connected, and never have been, with the United States Department of Agriculture, but I have been in State live-stock sanitary work and in charge of the bureau of animal industry of a foreign Government for a few years. It is seldom realized by the average man that when you begin to modify quarantine regulations you are laying up trouble, world without end. A quarantine ought never to be placed unless it is absolutely necessary, and when it is once placed it should be held strictly to the letter and the spirit of the law, without modification or amelioration, because just as soon as you begin to give in your quarantine is a failure.

DR. GIBSON. When the disinfection of cars was ordered, there was cleaned out of these cars anywhere from 3,000 to 16,000 pounds of litter. I believe that the various sanitary boards and the Bureau of Animal Industry did the railroad companies a kindness in having them throw this dead weight overboard and do away with a great many double-headers that they ran because of it—do away with the “hot boxes” they have because of it. It seems strange that our railroads would haul that weight of stuff. They know how much it would figure, and if you figure 5,000 pounds on an average it is putting it mildly. We did them a favor in all the States to require them to unload that dirt as well as to disinfect cars. It is an economic proposition for the railroad companies to do away with the hauling of these thousands and thousands of pounds of litter.

DR. BUTLER. In Montana for a considerable time we have required the disinfecting of sheep cars and of cars hauling hogs. Last year in our legislature there was a bill to require the disinfecting of all stock cars coming into the State. The railroad people came to our legislature and said, “We are perfectly willing to disinfect the cars, but we want to disinfect them at some stated point, and we want these regulations to be uniform. We don’t want you to have one

regulation, the State of North Dakota another, and Minnesota another. We want to disinfect our cars at some central point where it can be done cheaply and economically. If we disinfect these cars at the local points in Montana we have to send out our section crew and haul disinfectants probably 200 miles. What we want is uniform regulation, and if you sanitarians will get up uniform regulations, we are only too glad to disinfect the cars."

It is impossible for each State to get out regulations conforming to those of the other States, and it seems to me that the only method to have a uniform disinfecting of stock cars is for the United States Government to require all stock cars leaving any central market point to be disinfected. These cars are hauled to Montana, and, as Dr. Gibson said, they carry a lot of litter, and they are taken off to some local switch yard and the litter is dumped out on the ground and the car is disinfected there. The chances are that the railroad company is simply spreading infection upon our range. So that I would like to see the United States Government get out a regulation compelling the disinfection of all cars before they leave any stockyards. It is of more importance to us in the big range country to have the cars disinfected before they leave the stockyards than it is to disinfect them out in our place before they go into the stockyards.

Some of the gentlemen seem to think that the only disease we have is foot-and-mouth disease. It is not. We are shipping a lot of stock into Montana now from the different stockyards, a thing we never did before; but our country is changing. We have shipped something like 32,000 head of cattle in the last two or three months, principally from South St. Paul. We were getting so much shipping fever, hemorrhagic septicemia, and pneumonia from the different stockyards where we were getting cattle that we have required that all cattle entering Montana have to be inspected at destination and quarantined for 14 days, also that cars should be disinfected. I can absolutely state to you—and it is not theory, but from the figures that I have—that by those regulations we have reduced losses 75 per cent, and the deaths were caused principally by shipping fever. So that foot-and-mouth disease is not the only thing we have to disinfect against. We have several diseases that, while not as bad in the end, in years and years cause just as much loss as foot-and-mouth disease. The cars should be disinfected before they leave the stockyards, before they come out on the range countries.

Dr. DYSON. I think this is, perhaps, one of the most important questions that has come before this meeting. I have had a little experience recently in regard to cleaning and disinfecting. We require all cars hauling live stock within the State to be cleaned and disinfected. The reason that order was issued was because the tendency has been to limit cleaning and disinfecting cars to those reaching central markets. We include all cars shipping live stock, for the reason that during the present outbreak of foot-and-mouth disease no man could tell when or where it was going to break out. Just to illustrate, we have had the disease in McDonough County. We knew it was there. The next week we had it in Stark County, Livingston County, and La Salle County. The disease existed in these localities for one week before we knew anything about it. In the meantime what was to prevent the shipment of cattle from the in-

fectured farms, or adjoining exposed farms, to the market, to the public stockyards? Cattle may have passed through and infected the yards. It may not be realized for a period of several months what was occurring in the meantime.

I have no hesitancy in saying that, regardless of the cost of foot-and-mouth disease, it was a blessing in disguise. We are losing annually sixty million dollars from hog cholera. If we can control foot-and-mouth disease we can certainly control hog cholera. This traffic is a most prolific means of spreading hog cholera. In returning stock cattle back to the farm through public stockyards they are unloaded in the same chutes that infected cattle passed through. They are driven into the same pens. Likewise the man that goes to the central market and buys his stock hogs—they are driven right back into the same chutes and possibly loaded into a car that held cholera-infected hogs that morning. The result is cholera, and the average feeder wonders where he gets it.

Mr. TOMLINSON. The question of cleaning and disinfecting stockyards seems to be pretty thoroughly covered, and we all believe it is a good thing to disinfect these cars going out of the central market. Now, I would like to have an expression from the distinguished veterinarians who came to this conference as to their views of the disinfecting of packers' equipment and of railroad equipment. There seems to be a fundamental difference in the way you view this question and the way I do. We seem to be discussing ways and means of eradicating foot-and-mouth disease as if it remains with us forever. Now, I am trying if possible to prevent that disease, and I think it is introduced by material from countries having the disease.

Mr. VROOMAN. As I said before, we shall take that up later.

Mr. F. S. WELCH. As a representative of a railroad, I think that I should say something on this car-cleaning business. I believe the railroads would be glad to do whatever cleaning would be necessary to combat or prevent the spread of this disease. From an operating standpoint it is more convenient for us to do it at centers where the large markets are located than at some other point. As long as the regulations require the cleaning of all cars, whether going to or from central markets or not, it will result, I believe, in increasing car shortage at times because of the necessity of back calls. So far as expense of cleaning is concerned, I am not familiar enough to know what the actual cost of cleaning is. If the present charge is too great, as I understand, the railroad is compelled to furnish the burden of proof as to the reasonableness of the charge before the Interstate Commerce Commission or public-service commission.

There is one point that I wish to bring to your attention in connection with this question of cleaning of cars, and that is that the disease does not originate in the cars or in the yards. It originates on the farm. We should try to get at the point of origin outside the yards. Would it not be possible to have a regular canvass of the farms made with a view of discovering whether that disease existed on the farms before shipment and could that canvass not be checked up by having a representative of the department make an inspection of the stock before being loaded, on the day shipped out?

Mr. CUNNINGHAM. As a practical farmer, I want to speak to my farmer friends. We have been asking the railroads to disinfect their

cars and stockyards, also to disinfect their pens. As this gentleman remarked about diseases originating on the farms, if we would insist upon stock raisers disinfecting their stock and cattle, we would do away with infection. I found out that by putting some sulphur and ashes in my hog nests and spraying my cattle with a solution of carbolic acid twice a week, with a little paraffin oil in it, we could keep the flies away. We have also discovered that by putting a little sulphur in the stock barns we can prevent flies.

Mr. EMBRY. What disposition should be made of this filth taken out of the car?

Mr. VROOMAN. That is a very important point. What is done with the refuse from the cars?

Dr. MOHLER. That depends on whether the car is infected or from a quarantined area. In either of these cases the car is cleaned and disinfected, and the disinfected litter is dumped out in piles more or less removed from the stockyards, where it is allowed to rot. The heat generated by the rotting process also has a disinfecting property.

Mr. EMBRY. That looks very dangerous to me.

Mr. VROOMAN. If it is disinfected it is all right.

Mr. EMBRY. Yes; but is it generally done when cleaning these cars?

A MEMBER. In Kentucky when they clean the Bourbon yards, they pile it up in a large pile and disinfect it and ship it out to the adjoining county farmers, and it is hauled all over the adjoining county farms.

Mr. EMBRY. But every load was inspected by the Government officials and disinfected.

Mr. BIRCH. We still have that manure in our possession. It is still there disinfected and in piles.

Mr. McFADYEN. In regard to the manure out of the Pittsburgh stockyards, Dr. Marshall requires it first to be disinfected and also to be hauled to K Junction and destroyed.

Mr. EDWARDS. The same thing was done in Cincinnati.

Adjourned to 2 o'clock p. m.

AFTERNOON SESSION.

Mr. VROOMAN. A little change in the program has been made. Owing to the fact that a number of delegates are here to-day who probably would not be here to-morrow, we have decided to have our discussion of subjects not on the program—the general discussion—to-night.

Mr. BIRCH. Mr. Chairman, I want to state for my neighbor of Kentucky, Mr. Embry, who was under a misunderstanding about the litter, that the Bourbon stock yards has always cooperated with the Government and State. As far as manure and litter were concerned, a few loads—six in all—went out to the truck gardens. To-day there remain over 75 loads; and this will remain until the Government tells us what to do.

Mr. VROOMAN. The first thing on the program this afternoon will be a paper by Dr. Marshall on "An ideal State law for cooperation between State and Federal authorities in work of eradicating contagious animal diseases."

**AN IDEAL STATE LAW FOR COOPERATION BETWEEN STATE AND
FEDERAL AUTHORITIES IN WORK OF ERADICATING CONTAGIOUS
ANIMAL DISEASES.**

By DR. C. J. MARSHALL,
State veterinarian, Harrisburg, Pa.

It is the duty of the Federal Bureau of Animal Industry to prevent the introduction or spread of the transmissible diseases of animals to or within Federal territory under its jurisdiction. In accordance with State rights it is presupposed that each Commonwealth is prepared and equipped to handle such diseases within its borders.

The organic act of May 29, 1884, establishing the Federal Bureau of Animal Industry, specifically provides for the cooperation of States and Territories in the eradication of contagious, infectious, and communicable diseases, and in the execution and enforcement of this act. It also provides that when the properly constituted State authorities signify their readiness to cooperate for the eradication of communicable diseases, the Department of Agriculture is authorized to expend for disinfection and quarantine measures so much of the appropriation as may be necessary to prevent the spread of the disease from one State or Territory to another. Furthermore, provision is made whereby any individual may furnish information regarding diseased animals and may bring violations of this act to the attention of the United States attorney of his district, whose duty shall be to prosecute such violations.

When from the nature and extent of the disease it is feared that it may get beyond the control of the local authorities and spread to other States and countries, the Federal Government takes all possible precautions to prevent such an occurrence. The Federal Government has a legal right to quarantine a State and to prevent the interstate movement of live stock or anything that may carry contagion, endangering the live stock of another State or country. It can not establish or enforce quarantines against live stock on premises or portions of territory within a State, except as to the interstate movement of such live stock; neither can it force an entry or compel the destruction of animals or property. A State can not do so unless it is provided with the necessary legislation.

Under the present organization of the Federal bureau an efficient veterinary sanitary force is maintained at all times, and is in readiness for emergency work. Under ordinary conditions this force of men render valuable public service in the work of meat inspection, tick and scab eradication, and are able to conduct research work on many diseases. In the past such work has proved of inestimable value to the live-stock interests of the country. In cases of emergency the force is always available for quick and efficient action. Each State should maintain a somewhat similar service. Such men could be used to advantage at all times.

The Federal Government is not able to look after meat-hygiene work in houses that are not doing an interstate business. It is reasonable to suppose that the poorest class of animals is slaughtered in places not under inspection. About 60 per cent of the cattle, sheep, and hogs slaughtered in this country are subjected to Federal

inspection. This leaves 40 per cent of the meat supply which is uninspected. Milk hygiene is even more important, and very little is done in the various States on this subject.

The meat and milk hygiene service and the minor transmissible diseases of animals that should be looked after by the State would furnish an abundance of work for a good-sized veterinary sanitary police force. With such a force it would be possible for the State to furnish trained men to cooperate with the Federal forces in case of emergency. In this respect most of the States have been remiss in the past and, in a great majority of cases, were able to furnish no experienced, well-trained assistants to cooperate with Federal forces.

Aside from the regularly employed agents of the State and Federal Governments, each State should have an abundance of well-educated and efficient veterinary practitioners who may be called into public service when needed. All veterinary practitioners should be compelled by law to report promptly all dangerous communicable diseases of animals. In controlling foot-and-mouth disease the private practitioner can render most valuable service. The State veterinarian in Pennsylvania is authorized to employ local practitioners to do any kind of work when it is deemed necessary. In this way a large number of competent men scattered over the State are in constant touch with the work of the board. They are kept informed and are familiar with the laws and regulations, and most of them can be called upon for assistance in cases of emergency.

It is also important that the State furnish adequate means for a thorough veterinary education to a sufficient number of men to look after veterinary sanitary police measures. The day and generation have passed when men with business ability alone are considered prepared to be intrusted with matters which involve technical knowledge which they do not possess. Practically every State loses more than 5 per cent of its live-stock valuation each year from preventable diseases. Veterinarians should not be criticized for inability to prevent such losses when the State provides inadequate means, or none at all, for properly training men in matters of animal hygiene, and furnishes no money to control or eradicate these diseases. Very few of our States spend any money for veterinary education. If 5 per cent of the preventable losses was spent for veterinary education and veterinary hygiene work in each State, the work could be done satisfactorily, and millions of dollars saved annually for other purposes.

The general plan of organizing the work of cooperation between the Federal and State forces should be carefully planned and thoroughly understood by both sides when it is necessary to combine forces to handle unusual conditions, as is necessary in exterminating foot-and-mouth disease or other possible diseases that are equally as important. This would depend to a great extent upon the equipment of the State. It is especially true in reference to the number of available men, their qualifications and experience. The outline of the work to be covered in foot-and-mouth disease, for example, is somewhat as follows:

1. Locating the disease.
2. Placarding quarantines on premises and territory.
3. Appraising live stock and other property.

4. Preparing burial trenches.
5. Slaughtering diseased herds.
6. Disinfecting premises.
7. Farm-to-farm inspections.
8. Issuing permits.
9. Releasing quarantines.
10. Auditing and paying the bills.

The Federal and State forces should each have a main office and an efficient and sufficient office force to handle the business promptly and accurately. If the disease is widespread, the infected territory should be divided into districts, and a competent experienced man, familiar with the territory and the people, placed in charge of each district. It is perhaps best for the Federal and State Governments each to have a representative in charge of each district. If so, these men must understand each other thoroughly and work in absolute harmony. If this can not be done, each had better be given a separate territory or separate duties and then held responsible for his part of the work. Where the work is done together, each should have free access to the other's records at all times, and the field work should be routed and planned together so that duplications will be avoided. The districts should not be too large. The men in charge should be in daily touch with the working force and at the same time keep the main office informed daily of the progress and new developments. In reference to locating centers of infection, the main office should know where the suspicious shipments have been received, and by cooperating with the railroad officials, shippers, dealers, etc., this information can be obtained. The public should be informed through the press, agricultural papers, fliers, posters, public meetings, etc., of the presence and location of the disease, its symptoms, nature, and importance, and the measures to be adopted to prevent and eradicate it. In most cases the owner will report suspicious symptoms, either to his local veterinarian or to the State or Federal officers. This plan should be encouraged in every way possible. It has been very unusual for owners to hide or attempt to hide the disease, and it is believed that if they can be assured of prompt and fair settlement, none would deliberately try to deceive the officials.

As soon as the disease is located, or where there is reasonable suspicion of its existence, and where susceptible animals have been exposed to it, special quarantine should be placed at once. Local, Federal, and State agents should have authority to place such quarantines. If possible a guard should be placed over the premises. Curiosity on the part of stock owners and others to see how the disease looks is often responsible for its spread. A quarantine alone is not enough to keep such people away. Necessity often demands that the people on quarantined premises must leave the place. This might be done safely if a guard were present to disinfect their shoes, fumigate their clothing, etc. By this plan it would also be possible for children on quarantined premises to continue their school work safely.

Special quarantines, or those on a district or section of country, should be handled by the main office. The method adopted by the Federal bureau in classifying territory as free, restricted, exposed,

and closed was considered satisfactory, and should be followed as closely as possible by the State authorities. It is not practicable in all cases for the State and Federal quarantined area to be divided in the same way. A State may consider it safe to move animals within the Federal quarantined area for certain purposes, when the Federal Government could not permit such a movement across a State line. The State authorities may not be satisfied to accept shipments from out of the State when Government regulations would permit them. The main office should look after details of this kind.

On the matter of appraisements, a representative each of the Federal and State Governments should work together. These men should be familiar with the breeds and prices of live stock, and be able to place a just valuation on animals and other property that is to be destroyed. In case the owner is unwilling to agree to the appraisalment allowed, the Pennsylvania law provides for appointing sworn appraisers.

The slaughter method has been adopted as the best means for controlling the disease, and the sooner it can be done the better. An experienced person should be selected to destroy the animals. If any safe way can be devised to slaughter exposed animals and save the hides, or the carcasses for food, it should be done. It is seldom feasible to manage the destruction so as to accomplish this saving, for the reason that it is not safe to move exposed animals to slaughterhouses. There are seldom any facilities for conducting the work on the farm, and, moreover, there is but a limited market for the meat slaughtered on the farm.

As soon as the animals are disposed of the premises should be promptly disinfected. This should be carefully and thoroughly done under the supervision of a man especially trained for this kind of work. Reinfections occurred in very few cases during the past outbreak, yet much of the work was done in very cold weather and under adverse conditions.

Farm-to-farm inspections may be made by either State or Federal men. The diagnosis should be verified in all cases, and the most experienced and reliable men provided to examine all doubtful cases. There is perhaps more danger of diagnosing other conditions as foot-and-mouth disease than there is of failing to recognize and include true cases. The diagnosis is not always easy. It is especially difficult in those cases that have partially recovered and, in many instances, at the beginning or the ending of an outbreak.

Permits for holding sales, moving live stock, hides, fodder, manure, etc., intrastate should be handled by the State forces. In most cases the State men are more familiar with the territory, people, and the State regulations than the Federal men are. Permits should be issued without expense to the owner and by none except those specially authorized to do so. The Federal men have rendered valuable assistance in an advisory capacity in the matter of issuing permits.

All transportation companies, stockyard companies, shippers, and newspapers should be promptly notified by the main office of any changes in the regulations.

Before starting with the actual work of eradication a thorough understanding should exist as to the payment of accounts, not only as to the share of expense each party should bear, but as to the actual payment of same.

When it is decided that payment of claims is to be divided in a certain manner (as, for instance, each paying 50 per cent), instead of paying the claim by two vouchers, each for the exact share decided upon, it might facilitate matters and give more general satisfaction if such claims were paid in full at one time, either the State or the Federal department making the payment and being reimbursed by the other for its share of the expense. If a full understanding of the division of the expense is entered into before such expenses are incurred, no dispute would arise by this method and better work might result. However, legal difficulties arising out of the prohibition against the Federal Government making loans must be avoided.

During the past outbreaks claims for cattle, etc., were paid by two vouchers, one by the State and one by the Federal Department of Agriculture. It frequently happened that live stock were mortgaged to an extent of over 50 per cent. The share of neither department was sufficient to defray this mortgage, and as a result much confusion and delay took place in the settlement of such claims, with a corresponding degree of hardship and dissatisfaction on the part of the owners.

Funds should also be made available for the prompt payment of temporary laborers, such as men employed in the digging of trenches, the labor incident to disinfection, etc. Such funds were not always available during the past outbreak. It is extremely difficult to get competent labor quickly and at a proper rate when the payment of wages is a matter of doubtful promptness. The majority of this class of workers are dependent upon their daily wage for their daily bread. However good their claims might be, they are not in a position to wait. This might be handled by special temporary disbursing agents, who could be bonded and sent out with the field parties.

It is extremely important that definite plans be adopted for obtaining funds and for making prompt payment of all just claims when it is necessary to destroy live stock and personal property for the public good. In certain States the limit of appraisement has justly been raised to full market value in cases of foot-and-mouth disease. Some States have neglected to set aside funds for meeting such appraisements, but have trusted to the generosity of future legislatures to appropriate the money. This plan is too uncertain and far removed to appeal to our practical breeders and live-stock men. Many of them are unwilling, and can not afford, to accept promises that are not bankable. Colorado has adopted a plan that seems reasonable and just. It is as follows:

The governor has authority, in emergency cases under certain conditions, to issue certificates of indebtedness. These certificates are practically notes of the State carrying 4 per cent interest, and under the constitution the legislature is required to make an appropriation to care for such certificates whenever it meets. Under the law passed last winter in Colorado, in case of an outbreak of foot-and-mouth disease, or any other highly contagious disease, the stock board informs the governor and he authorizes the board to destroy such live stock and property as may be necessary, after appraisement; and upon certificate from the board as to the indebtedness of the State, the governor causes certificates of indebtedness to be issued. As these carry 4 per cent interest and are certain to be

cashed at the first session of the legislature, they are practically the same as cash and will be accepted by all banks the same as any other security. Under this plan the credit of the State is used for any amount that may be necessary to stamp out any serious live-stock contagion. The plan is simple, and, it is believed, will be effective.

Cooperation of State and Federal Government officials must exist to the fullest extent if prompt and efficient work is to result. The system of dividing the matter of expense equally between the State and Federal Governments, which existed during the recent outbreak, seems to have been just and equitable, and one which gave general satisfaction to all concerned. The actual work should be done on a fifty-fifty basis also, if possible.

The subject assigned for this paper was "An ideal State law for cooperation between State and Federal authorities in work of eradicating contagious animal diseases." The "ideal" is so difficult of attainment that some authorities define it as "visionary, or existing only in imagination." Therefore, while having an ideal in mind, I prefer to confine my efforts on this subject to a comprehensive law which may be tangible, rather than to an ideal which is only visionary. This is a matter which has received our attention and efforts for a number of years and has resulted in the adoption by the Legislature of Pennsylvania of what is known as the act of July 22, 1913.

The inception of the present Pennsylvania law was the act of May 21, 1895, which created a State live-stock sanitary board and defined its duties. The original act has been amended from time to time and was finally codified into what has proved an efficient and comprehensive law, under which we have been enabled satisfactorily to handle several epizootics, as well as the ordinary run of transmissible diseases which are of daily occurrence. It has also given us power to impose restrictions upon the interstate movement of diseased and undesirable animals, and enables us to secure assistance from the Federal Bureau of Animal Industry by a section which definitely provides for cooperation with the authorities of the National Government (sec. 34). Such assistance is not confined to interstate cases, but may be and has been available for work within the State.

The Federal employees are appointed agents of the State live-stock sanitary board, and identification cards are issued to them. They then have the same authority as regular State agents, but receive no compensation from the State. In this way the Federal men have rendered to the State valuable assistance. The board has never had occasion to regret that such authority was given, but has felt under deep obligations to the Federal Government for the valuable service it has rendered in exterminating two outbreaks of apthous fever.

In the discussion of an efficient live-stock sanitary law we must first consider the foundation upon which it is to rest. There should be provided a live-stock board or bureau in the State department of agriculture. Such body must be composed of men who shall be well versed in live-stock diseases, and not of so-called practical business men or practical farmers whose views will incline only toward minimizing the immediate financial losses occasioned by destruction of diseased animals. Under the direction of this body there must

be an efficient corps of trained men whose services as sanitary police may be available at any time upon short notice. For this purpose it is not necessary to maintain a large standing force, but a small corps of regular employees may be used in an emergency as a nucleus for the formation of a larger force to handle unusual conditions. Under ordinary conditions the regular employees may be profitably used in the work of meat and milk hygiene and in handling the usual run of dangerous diseases which are constantly encountered by owners of live stock. In order to be of greatest service the live-stock authorities thus created must be provided with legal authority to enforce such requirements as may be deemed necessary.

Probably the most important requirements will be an efficient quarantine, which should be elastic as well as drastic. Such a quarantine could be made to cover all classes of animals, individually or collectively, and all materials which may convey contagion. It should also be made to apply to individual premises, as well as to all premises and territory within described boundaries. In addition to quarantine, a comprehensive law must provide for appraisement and destruction of animals and property, when such action shall become necessary in order to prevent the spread of disease. Provision should be made for equitable and prompt adjustment of all losses thus sustained.

In order that such a law shall have force it is necessary to provide penalties for infractions of the statute itself, of quarantines, and of rules and regulations adopted pursuant to the law.

In formulating the Pennsylvania law, these were the salient points around which were collected the auxiliary requirements necessary to place it on a workable basis. While we do not presume to offer it as an ideal, as we are aware of several minor points wherein it may be improved, we have found it to be sufficiently comprehensive to enable us satisfactorily to handle our sanitary work.

This law also empowers us to make rules and regulations for its enforcement. Furthermore, it has been declared to be fair and just, and has received the indorsement of the progressive and broad-minded live-stock owners and breeders of our State.

The law should be broad in its terms; the powers conferred on the live-stock board should be comprehensive; details should be omitted. Wide range of authority is essential if officials are to get efficient results, particularly in emergencies. An attempt to regulate minor matters in the statute itself is sure to lead to embarrassment and to hamper officials when they have to deal with unforeseen contingencies. No scheme which is elastic and adaptable to all conditions can be devised, unless it embraces power, lodged somewhere, to make changes and do unanticipated things without the delay which would be unavoidable if an amendment of the law itself at the next session of the legislature were required before the board could move. Vesting in the board power to make rules and regulations is the ideal provision for taking care of details. Such rules and regulations, of course, are not valid unless in harmony with the guiding principles prescribed by the statute.

The only serious inconvenience we have encountered in the operation of our law and regulations is the fact that in some respects they conflict with parallel laws and regulations of other States and those

governing the Federal Bureau of Animal Industry. These discrepancies are very confusing and embarrassing to transportation companies and shippers, also to live-stock owners living near State borders. A railroad agent may receive rules and regulations from the Federal authorities and half a dozen or more States from which his road draws its live-stock traffic. All of these regulations may differ on essential points, and it will be impossible for the agent properly to construe the intentions of the various authorities. Nearly every regulation which may be drawn will be provided with exceptions to cover various classes of live stock and various exigencies which may arise, as in the case of live stock for immediate slaughter being differentiated from feeding or breeding stock and subject to an exception to the general provision of the regulations. That which is permissible under an exception to a regulation of one State may be prohibited by a regulation of an adjoining State which has not provided for such an exception.

In one instance a shipper obtained a permit in Ohio to move and ship a load of cattle. When the railroad agent refused to accept the consignment on the ground that the Pennsylvania regulations prohibited the importation of such cattle, the shipper became incensed and threatened a lawsuit and to withhold his future patronage from that railroad. The shipper thought that by complying with the regulations of one State and obtaining an official permit he was at liberty to carry out the intention of his permit.

In another instance a shipper obtained a permit from a Federal agent in New York to ship a load of dairy cows into Pennsylvania. After viewing the Federal permit the railroad agent received and forwarded the consignment. At that time the Pennsylvania regulations forbade the importation of dairy cattle, and when the animals arrived at destination they were quarantined and held under observation for six weeks, which occasioned loss and inconvenience. It was natural for the shipper in this case to assume that the Federal authorities had jurisdiction over interstate shipments. His assumption was correct in so far that the Federal authorities could forbid the interstate shipment, but was wrong in assuming they could affirmatively authorize it in conflict with Pennsylvania regulations.

If these objections can be overcome by the adoption of uniform laws and regulations by all States, in conformity with similar laws and regulations of the National Government, we will make rapid progress in the work of live-stock sanitary control. There does not appear to be any serious difficulty in the adoption of a uniform National and State law, but when we approach the subject of uniform regulations we will probably encounter numerous perplexities and controversies, owing to differences of sanitary problems in various sections of the country. This will be especially true in regard to interstate movements by common carriers.

It may be of interest to refer to a difficulty of this nature which arose in our State during March, 1915, at a time when the foot-and-mouth disease outbreak was under control and restrictions were being gradually lessened. Under Federal regulations it was permissible to ship live stock for immediate slaughter out of Federal modified and exposed areas. The Pennsylvania regulations forbade such shipments to enter our State, and were even more drastic in forbidding such shipments to pass through the State en route to

other States. A reference to the map will show the keystone position held by our State, as such shipments could not reach New York, New Jersey, or the New England States except by passing through Pennsylvania or Canada, and of course Canada was closed to live stock from the United States. From certain experiences we felt justified in adopting and enforcing our own State regulation. So far as we are aware, no other State adopted a parallel regulation. Hon. Francis Shunk Brown, attorney general of Pennsylvania, declared that we had legal authority under the sanitary law to adopt and enforce such a regulation. Hon. Martin G. Brumbaugh, governor of Pennsylvania, upheld our action as being an advisable precautionary measure to prevent reintroduction of foot-and-mouth disease into the State. The regulation was also indorsed by various breeders' associations. Of course the railroad authorities vigorously opposed our action; but after a conference, at which our position was clearly and forcibly stated, the railroads withdrew their objections and took immediate steps to comply.

As far as practicable such situations as the above, and all other problems which may arise, should be anticipated, and uniform regulations be prepared for adoption by the various State and National authorities. Such uniformity should cover, so far as practicable, the transmissible diseases of animals, the manufacture, sale, and use of biological products, and meat and milk hygiene. Municipalities and local boards of health should adopt the laws and regulations of the State, and the States should follow the Federal Government.

Probably the best method for attaining the desired uniformity would be for the Federal authorities to have supreme jurisdiction over live-stock sanitary control work in each State, with the State organizations acting as auxiliaries and being in immediate charge of the field work. I realize that this proposition is somewhat visionary and approaches too closely to the ideal to be practical at this time. But I am convinced that a final solution of this problem of uniformity can, and probably will, be worked out along these lines, just as has been done in the case of the military forces of the various States.

The Pennsylvania law has stood the tests of the lower courts in a number of instances, and its constitutionality has been upheld by the superior court. The opinion rendered by the learned Judge Orlady, of the superior court, will be gladly forwarded to anyone who may desire it.

DISCUSSION.

MR. VROOMAN. We shall be glad to hear a discussion of the paper just read.

MR. LAMB. The speaker quoted the Colorado law relative to the control of foot-and-mouth disease and other serious contagious diseases. I have a copy of it and want to give a few extracts. When this foot-and-mouth disease was raging in the East our legislature was in session, and they watched with bated breath; and I mean that, because Colorado has not drawn a good deep breath for the past year. You gentlemen have no idea what the attitude of the ranchmen is in regard to foot-and-mouth disease. If you had so much difficulty in the East, what would it do in the ranch country, where there are no fences for miles and miles and miles? You may think that they are a little slow in modifying their regulations, but they think they

had better err on the side of safety and that they can get along better without a few dairy cows than take a chance on foot-and-mouth disease. At the same time they have provided a good law to control it in case it is ever introduced. In the first place, it gives the State board of commissioners authority in case disease exists in such a State or Territory. The State board shall, with the approval of the governor, have the power to destroy any live stock so infected or able to communicate such disease, and to destroy pens, etc., which the State board may deem necessary to prevent the spread of such infectious or contagious disease. Another section provides that whenever there shall be an outbreak in such a State or Territory it shall be the duty of the State board to notify the Secretary of Agriculture and seek to cooperate with the United States Bureau of Animal Industry in preventing the spread of the disease beyond the boundaries. It also provides for appraisal and certificates of indemnity, and there is no limit to the certificates that may be issued. The entire wealth and credit of the State is by this law behind this live-stock sanitary board to combat foot-and-mouth disease if it is ever introduced.

While I do not hold this up as a model law, I do believe that it is a law that can be copied by several other States with advantage to themselves. But what I want to impress upon the sanitary officials of every State that may consider that Colorado is dilatory about lessening its quarantine requirements, is that you have no idea how the ranchmen feel and with what fright they watch the approach of foot-and-mouth disease, and with what joy they watch its extermination.

A MEMBER. May I ask Dr. Marshall one question? Supposing herds become infected, what should be done with the supplies on hand? There may be \$5,000 worth of feed in the building.

DR. MARSHALL. In most cases it is possible to save the feed by disinfecting it, if done under the supervision of a man competent to judge the efficiency of the manner in which it is done.

THE MEMBER. You do not recommend the shipping of it out of the premises?

DR. MARSHALL. It has been sold for horse feed or to go to some place where they knew it would be safe. We have not had any trouble from that.

DR. REYNOLDS. In connection with Dr. Marshall's paper, it might not be amiss to call the attention of this body to the fact that the United States Live Stock Sanitary Association several years ago appointed a committee for the purpose of drafting a statement of the essentials of a good sanitary law. Such a committee was appointed and labored for about two years and brought in a report. There were about 40 States represented at this meeting, which through their representatives accepted this statement as a statement of the essentials of such legislation, and I think that anyone who cared to get a copy could easily get it by addressing Mr. J. J. Ferguson, secretary of the association, at the Union Stockyards, Chicago. It is a rather brief statement of the essentials of good live-stock sanitary-control legislation.

MR. VROOMAN. If there is no further discussion of this paper, we will proceed with the next paper of the afternoon, by Dr. Moore, dean of the College of Veterinary Medicine, Cornell University, Ithaca, N. Y.

WHAT GENERAL AND WHAT SPECIFIC RULES SHOULD BE OBSERVED IN FIXING THE PERIODS AND DURATION OF THE DIFFERENT FORMS OF QUARANTINE AGAINST FOOT-AND-MOUTH DISEASE?

By DR. VERANUS A. MOORE,

Dean of the New York State Veterinary College, Ithaca, N. Y.

The assembling of men for the purpose of discussing the subject of quarantine and its application to a particular disease is not new to sanitary science. The term itself refers to the old sanitary system of detention in the lazarets of ships and men for 40 days for the purpose of fumigation. Quarantine dates back to 1348. Since that time there have been many international conventions on the subject. Paris, Vienna, Constantinople, and Rome have each entertained gatherings of this kind. However, it was in the conferences at Venice in 1892, Dresden in 1893, Paris in 1894, and again at Venice in 1897, that the controverted points were settled relative to the rights of communities to close their borders to any and all traffic that was liable to carry infection to other individuals or countries. There is, perhaps, no other topic in preventive medicine that has received more careful attention than this. The necessity of quarantine has been recognized, and already statutory authority has been given to the proper officials by State and National legislative bodies to enforce it whenever it is deemed necessary in order to prevent the spread of a communicable disease. The principle, therefore, that such protection is a legal obligation is clearly established, and the correlated question of authority to enforce it is granted throughout the civilized world.

The adjusting of a quarantine has been a matter of much controversy. From the beginning its purpose has been to protect men and animals against infectious diseases. While this appears to be simple, many perplexing questions have arisen relative to the requirements to be observed when the quarantine is laid either as a means of eradicating or as an aid in combating infection. The two most important are to determine the time necessary to enforce it and the restrictions required to insure its efficiency. For centuries the time was an arbitrary period fixed by the authorities. The records show that the effect of such a definite time was satisfactory in many instances, but there were numerous exceptions. In some instances these allowed new cases to arise which became centers for the further spread of the disease. However, such quarantines did much to hold the plagues in check. That was all that could be accomplished, for the nature of the diseases was not understood.

In recent times the development of definite knowledge concerning the cause of the diseases to be guarded against have shed new light upon the requirements of quarantine. After the etiology of the plagues was known, when the channels by which the virus escapes from the body were recognized, when the degree of resistance of the infecting agents to external influences was determined, and when the ability of the virus to find another host was understood, it was easy to explain that for the protection of a community a quarantine could not be raised arbitrarily, but should be held until the individuals thus segregated are no longer capable of transmitting the virus.

This changed the practice of holding a quarantine for an arbitrary period to one that fixed its duration in accordance with the time during which the infected individuals are dangerous. In addition to this, such restrictions were added as seemed necessary to prevent the escape of the virus.

Those who reason in terms of mathematical precision may have difficulty in understanding that animals alike in all obvious respects which become infected with a given virus at the same time do not die or recover and eliminate the germs from their bodies in a like manner. The fact is they usually do not. Why this is so has not been entirely explained, for the phenomenon is a struggle between two vital forces—the individual infected and the invading organisms. The resistance of the host is not known, and the invading power of the organism is not determined. As the struggle comes to an end the animal body may entirely free itself of the virus, or a few of the organisms may remain in some tissue or organ where they may multiply and from whence they may escape for a very long time to infect others. These are called “carriers” or spreaders, and they present the most difficult problems in sanitary science. Again, in the process of healing a diseased focus may remain somewhere in the body, which may become surrounded with protecting tissue and the individual appear to be fully recovered. The virus in these areas may die or after a time grow through the retaining wall and either start up the disease anew or escape from the body to infect other individuals. There are many illustrations of this, the most conspicuous historically being the cattle that carried contagious pleuropneumonia from Europe to South Africa and Australia months after recovery was thought to have been complete.

Successful quarantine must take into account many factors. Most of them come to us not as clearly defined tangible facts, but rather in the form of biological forces which manifest themselves in the unfolding of the disease. They are the controlling elements, although they can be understood only in so far as our knowledge of infectious diseases is able to interpret them accurately. However, the principles to be observed are clear. The quarantine is placed to prevent the spread of the virus. It must be maintained until there is no danger of the animals transmitting it either immediately or at any future time. It is difficult for those not trained in the habits of microscopic life to appreciate that viruses are vital forces that take no heed of the opinions of men. The fact can not be too forcefully emphasized that naturally infectious diseases are spread in accordance with the means—simple or complicated—provided by the laws and forces of nature for that purpose. The agencies for the transmission of infectious diseases were not designed for the convenience of animal owners or sanitary officers, but rather to enable the virus of the disease to perpetuate itself and to be transferred from the infected to the uninfected individual. We should not forget that the virus of foot-and-mouth disease, for example, is a definite factor in nature's economy and is provided for quite as much as the perpetuation of other living things. We look upon the transfer of pollen by the insect in the fertilization of clover as a wonderful provision of nature because clover is useful to man. The transfer of the virus of a plague from one host to another is

often just as wonderful and always just as securely provided for, but because its effect operates against human interests there is a tendency to condemn and to pass judgment without knowledge.

The fixing of a quarantine period and defining its specifications are dependent upon the character of the disease and the nature of its etiology. There must be knowledge of the location of the virus within the host, of the time in the course of the disease within which it is eliminated, and its ability to spread after escaping from the body, in order to safeguard adequately against it. Again, the purpose of the quarantine modifies both its duration and requirements. If it is to protect a community against the introduction of a foreign disease, it is obviously more drastic than if it is used only as a temporary means of combating the malady. When employed for permanent protection it should remain for the maximum period of incubation and for the longest known time required for the lighting up anew of arrested lesions. In case of certain diseases the virus, after it escapes from the body, is able by numerous and insidious ways, to disseminate itself to such an extent that it is difficult or impossible to confine it to the quarantined area. These are all-important considerations in determining just what procedure shall be followed. In any case a margin of safety must be allowed. Rabies affords a good illustration of this. The average period of incubation of rabies in dogs is less than 40 days, but by enforcing a quarantine of six months on all dogs going to Australia the disease has been kept out of that country.

In order to apply the principles underlying quarantine to foot-and-mouth disease it is necessary to have the knowledge obtainable from clearly defined answers to the following questions, namely:

1. What is the nature of the virus?
2. What is the period of incubation?
3. How does the virus escape from the body, and by what agencies is it carried from the infected to susceptible animals?
4. How long after apparent recovery are the animals capable of transmitting the virus?
5. Is it possible by practicable quarantine methods to prevent the virus from spreading after it leaves the body?

Because of the extreme infectiousness of this disease it has not been studied experimentally in this country. The work with it has been regulatory and for the purpose of diagnosis. The character of the virus has not been determined, other than to learn that it will pass through bacteria-proof filters and that it escapes from the open lesions of the affected animal. The period of incubation varies within undetermined limits. Exposed animals, as a rule, develop symptoms in from three to seven days, but in occasional cases the time is much longer. In New York it was found that now and then two and three weeks elapsed before symptoms appeared. After the virus escapes from the lesions it is carried on any article with which it comes in contact—the clothing or hands of attendants, on food, litter, implements, domesticated animals, or insects.

The troublesome cases are those that carry the virus after healing. There are reports that animals have infected others months after

apparent recovery. These are exceptions, but they affirm the possibility of such individuals spreading the disease for this period, and we do not know for how much longer. Unfortunately, we have no means of determining in advance how long an infected animal may harbor the virus. Zschokke investigated its ability to remain in the feet. He found that the vesicles which occur in the skin of the interdigital spaces and the plantar cushion may also extend under the horny capsule, forming there furrow-like spaces along the sensitive laminae of the wall and sole. He also found hidden vesicles in the hoof which did not open to the outside. This virus would remain there until it was brought to the surface by the natural wearing away of the hoof. There is nothing to prevent animals thus affected from eliminating the virus for an indefinite time. Loeffler, after careful investigation, recommended that no animal that had recovered from foot-and-mouth disease should be permitted in the channels of commerce.

A factor of still greater significance is the ability of the virus to escape by insidious ways and to be carried from the infected to well animals, notwithstanding the barriers of quarantine. It is so difficult because of the many possible carriers that Dammann stated it could not be prevented. He did not mean that infected cattle could not be isolated long enough in insect-proof inclosures with efficient guards; but that it was impossible by the usual or even more than ordinary rigid enforcement of quarantine regulations to prevent the virus from escaping and infecting other animals. His conclusion is confirmed by the best live-stock sanitarians of Europe. It is the verdict rendered after long experience and observation by men who have endeavored to eradicate foot-and-mouth disease by quarantine and police control. In passing judgment upon this phase of the subject we must not be controlled by the experience with a few herds or even outbreaks. Data from many infected districts and numerous epizootics are required, for by the laws of chance fortunate results may in a few cases follow any procedure. In this country, where experience with this disease is very limited, we are not in position to judge unless we supplement our knowledge with the results of those whose experience is sufficient to indicate the shortcomings and the value of quarantine. We are dealing not with a local question but with a nation-wide problem. Because of this greater responsibility our quarantine regulations should be safe, reliable, and sound.

I have dwelt somewhat at length on the principles underlying the determination of the important factors in quarantine, for the purpose of pointing out the many elements involved in safeguarding our live-stock interests by this method. Until more data are available the best we can do is to live up to the knowledge we possess, unswerved by individual experiences to the contrary. When Capt. Ross went to India to study the mosquito as a carrier of malaria he was often almost persuaded that the accused insect was innocent. He laboriously studied, one after another, 999 specimens in vain, but the thousandth one revealed the story of the *Anopheles* as the intermediate host and spreader of the malaria plasmodium. There is a common tendency to yield to the findings in a limited number of cases. There are people willing to formulate regulatory measures suggested by a personal experience. While such experiences have

their value, and while they may represent the majority, it is well to remember that although it is the usual that ordinarily happens, it is the unusual that most often causes the trouble.

As I understand it, the questions involved are the object of the quarantine and the enforcement of its requirements.

There are two clearly defined purposes for which quarantine has been employed in connection with foot-and-mouth disease, namely, first, to control it, and, secondly, to check its spread temporarily until drastic measures can eliminate the diseased animals and render safe the premises occupied by them.

There is no other disease that ever gained entrance to this country so difficult to restrain by quarantine as this, due not only to its high degree of infectiousness but also because practically all species of animals are susceptible. Again, the undetermined limit of time that recovered animals may be carriers can not be dismissed without careful consideration. Both Hess and Loeffler found that a limited number of recovered animals carried the virus for seven months. Nevermann, in his last annual report of the veterinary officers of Prussia, pointed to more than 100 outbreaks of foot-and-mouth disease attributed to virus carriers. The experience in practically all European countries points to the failure of quarantine as a means of eradication. The outbreak in Germany in 1892, which cost that country \$25,000,000, and again in 1911 with a still heavier loss, speaks with emphasis on the weakness of this method. When such veterans in sanitary science as Dammann state that it is impossible to enforce a sufficiently strict quarantine to hold the virus of this disease in check it seems presumptuous for us to consider it otherwise. When men like Loeffler and Hess find animals seven months after recovery capable of spreading the virus, we have no experience in this country, and there is none in any other, to deny the possible danger of allowing record animals to go at large within that time.

From the present knowledge of foot-and-mouth disease and the available data concerning methods for its control, two kinds of quarantine seem to be necessary, namely, Federal and local.

The Federal quarantine is imperative for all animals coming from countries in which foot-and-mouth disease exists. It should be rigidly enforced and maintained so long as there is a possibility of the animals transmitting the virus. In addition to this, strict supervision of all imported articles or substances that might bring the virus is essential. The outbreaks of 1902 and 1908 illustrate in a striking manner the necessity for such care.

The local quarantines need not be considered at length. They are, however, of the greatest importance in checking the spread of the disease. The Secretary of Agriculture has formulated regulations for this purpose and issued them as B. A. I. Order 231. This order leaves little to be added unless from experience changes or additions seem to be necessary. It provides for rigid quarantine of the affected premises and the country immediately surrounding them and, under proper veterinary supervision, they permit the limited movement of animals in the next adjacent zones. This plan in itself is excellent. There is, however, need for a better mechanism for promptly enforcing it in the different States. Many of them are not organized in such a way that immediate action is assured. The delay of a single

day may cause heavy additional losses. To guard against this there must be a closer sanitary supervision. We should find, if possible, the best method of bringing this about. I have suggested district veterinarians, under the State veterinarian, whom animal owners and practitioners could call at once, and who should have authority to enforce quarantine measures and to aid in making the diagnosis in cases of doubt. They would serve as sanitary supervisors, and their territory should be no larger than they can properly cover. An expert district veterinarian would give both technical assistance to practitioners and have authority to enforce regulatory restrictions whenever necessary.

The enormous value of our live stock warrants the necessary expenditures for efficient protection. Whatever system of quarantine is finally adopted the Federal and State Governments should recognize their obligation to the animal industries of the country. They should be prepared to meet emergencies. In the eradication of an epizootic there should be cooperation. In plagues like foot-and-mouth disease, where control necessitates the destruction of the entire herd, often of valuable animals, it would seem wise for our legislative bodies to consider adequate indemnity for the unfortunate owners. With proper precautionary measures such epizootics should be very rare. But if perchance they do appear, and herds have to be destroyed, would it not be wiser and eventually cheaper to have indemnities sufficient to encourage cooperation rather than those that provoke opposition? Eradication is for the good of the public, and those who are benefited might bear a part of the burden of the owners of the condemned animals.

A campaign of education should precede or accompany regulatory work. The people should learn that the slaughter of infected and exposed animals alike is not the notion of any individual but the method arrived at by the crucial test of research and experience. To be fully prepared, each State as well as the Federal Government should have a definitely formulated plan of attack that could be applied immediately should foot-and-mouth disease or any other animal plague appear.

Finally, the conclusion seems to be justified that when this disease appears in a country generally free from its infection, like the United States, quarantine should be enforced for protection against all importations that may bring the virus, and that local quarantines should be employed only as a means for temporarily combating the disease. Its eradication is to be accomplished by the heroic measures of slaughter and disinfection. This conclusion is reached in full recognition of what has been accomplished with quarantine in isolated instances and in certain infected countries like the Philippine Islands. The slogan should be, "We can not afford to have foot-and-mouth disease in this country."

DISCUSSION.

MR. HAGENBARTH. I would like to ask Dr. Moore, who I presume is an authority on the subject which he has just discussed, about his statement in his paper that among the quarantines which he thinks should be established there is one reaching out far enough to touch

articles imported into this country from foreign countries where the disease is rampant. I would like to ask Dr. Moore if he considers that hides, hoofs, horns of animals, wool, or other products that are imported into this country from countries where these contagions exist, could be quarantined against in any manner by this Government, and if so, in what manner; and if there is any danger against our welfare from the importation of these articles, and if it is an unreasonable hypothesis to suppose that we are not only able but ought to protect ourselves against this danger?

Dr. MOORE. I think that there is; but that opinion is not based on any positive fact. We know in these other cases the evidence is very strong and incriminating as to certain articles that were imported. I don't know how this is going to be done, but I believe the Bureau of Animal Industry has a regulation against the importation of hides or things of that kind without proper supervision. I refer to the fact because I think it is one of the possible dangers accompanying the introduction of this contagion. It has got to come to us in some way, and if it doesn't come in animals that have become infected and are supposed to be recovered, then it must come in some other way. It must be brought to us, and just what the regulations are, I suppose it was the purpose of this conference to ascertain. I do not know the details of what can be done, but I believe it is one of the things that should be taken into account by our Government in formulating protective measures.

Dr. ORMSBY. I would like to ask the professor if he considers the saving of this million-dollar prize stock out here at Hawthorne a year ago and returning them to their owners, passing them down through the State, is a menace to the health of the rest of the cattle down where they have been shipped. From his statement and theory we must believe that all of those cattle that were saved and pronounced cured and returned to the owners are still a menace to the cattle of those various vicinities wherever they have been. I think they went into several States.

Dr. MOORE. That is a very hard question. We can only go so far as we have light. These animals, as I understand it, were kept in very rigid quarantine, infinitely more strict than could be carried out on any ordinary farm or with any ordinary cattle. The possibility of their being infected was tested by inoculation into other animals. They were held in quarantine for the maximum length of time which animals have been known to transmit the disease. If we go on the facts that we have, there was no danger; but I do personally consider that there was a shadow of danger in that, and I was very particular to carefully advise all of the owners of those cattle who came to me—and several of them did in regard to it—that they should not put those animals with their herds at home, but should keep them in very strict quarantine for several months longer. Some of them I think did that. I do not think there was any great danger; but I think from the general knowledge of infectious diseases that there might be a potential danger. Every precaution was taken that I know of to comply with the knowledge that we now have of this disease. But we must remember the saying that goes down in scientific circles—that the truth of yesterday is not the truth of to-day, and the truth of to-day is but the forerunner of the truth of to-morrow. We

may find that animals are able to carry this disease for 10 months or for a year, and in that case that would be dangerous.

Mr. MUNN. Did I understand you to say in your principal address that Dr. Loeffler had found foot-and-mouth disease dormant, that cattle had had it seven months after the disease had disappeared finally? I didn't understand the number of months.

Dr. MOORE. It was seven months, as I understand it, after the animal had recovered from the disease that it was able to transmit it.

Mr. MUNN. Is it not a fact that the Hawthorne herd was distributed in about six months?

Dr. MOORE. I said that these animals that I was asked about were kept in quarantine as long as any animals have been known to transmit the disease after recovery.

Senator WHITE. Did some of those cattle go back to your State?

Dr. MOORE. Some went to Massachusetts, but they were not quarantined. I suggested to the owners that it would be a safe precaution if they would keep them away from their herds for some time.

Mr. CUNNINGHAM. I want to know if the scientists have discovered the germ or the bacillus of hoof-and-mouth disease?

Mr. VROOMAN. No; they have not.

Mr. BENT. It seems to me that before we sacrifice great value on a theory of a chance that there is some risk in the carrier of an animal we should address our attention first to the positive carriers that we know have been very prevalent, in carelessness in handling the disease, property, feed, employees on the farm, and the employees of the Federal and State Governments. [Applause.]

Mr. VROOMAN. The point seems to be well taken. [Laughter.] Dr. Munn has to leave, so he is going to speak now. He was to have come on the program to-morrow.

THE NEED FOR LEGISLATION PROVIDING FOR FULL COMPENSATION, EFFECTIVE QUARANTINE, AND SAVING PEDIGREED STOCK.

By M. D. MUNN.

Mr. MUNN. May I be permitted at the outset one correction, lest there should be some misunderstanding of some of the statements I may make, on which I may protect myself on the ground of ignorance? I am not a doctor; I am a lawyer.

Mr. VROOMAN. Doctor of laws, I meant.

Mr. MUNN. At the outset, on behalf of the record associations—and I am speaking on behalf of that body as well as myself individually—I wish at this time most sincerely to thank the honorable Assistant Secretary for calling this meeting, and to express our appreciation of the broadmindedness and the statesmanlike conception disclosed by him in calling the meeting. [Applause.] It is indeed gratifying to find men carrying on a department of our Government who have that breadth of vision and the courage to meet the situation when it arises.

Perhaps it is not improper for me at this time to point out the difficulty which the Government encounters in meeting a situation like the hoof-and-mouth disease. Of course, you know we live under what we call the dual form of government. We have the National and State Governments. The powers of the National Government are necessarily limited, and it is only when a condition touches upon that portion of the State powers delegated to the

Federal Government that the Federal Government can act at all. Hence it is that in cases like hoof-and-mouth disease outbreaks and other contagious or dangerous diseases, when we attempt to suppress them, the Federal Government is powerless to deal with the situation adequately; and I regret that the suggestion made by one of the learned veterinarians that, in his opinion, this whole power to control diseases of this kind should be delegated to the Federal Government is impossible. He spoke of it as visionary. It is worse than that; it is impossible, simply because of the limited form of government under which we live, namely, the dual form.

With that understanding, I want to make a few suggestions, but before doing so I wish to say to these veterinarians and to the honorable Assistant Secretary that the breeders of this country are law-abiding. The difficulty has been where opposition has arisen from the fact that the laws at present are so imperfectly framed, are so inadequate to meet the situation, that it has been perhaps deemed necessary on the part of those entrusted with the handling of the situation to act in a somewhat arbitrary manner; and you know every American citizen, when he feels that a right he has under the Constitution may be invaded, resents it. That is what gives strength to our American citizenship. And I want to assure you that, in my opinion, the difficulty and the embarrassment and the sole obstruction, where it has arisen, is due to the fact that the laws are imperfect, and it has been necessary perhaps, in the opinion of those entrusted with the enforcement of the law, to resort to arbitrary measures, which should never be the case, because we should have our laws so framed that they are self-executing when placed in the hands of the agents we select to execute them. [Applause.]

Little can be gained from a meeting of this kind unless we can make some forward-moving suggestions. We never gain anything by criticizing the past. I noted in the address of one of the veterinarians a tone that I didn't quite like—and I am not in any way an obstructionist. He seemed to have the idea that it was a part of the duty of those upon whom the law comes in contact to be resigned. It is the duty of those upon whom the law comes in contact to be obedient when the law makes it clear that obedience is required; and I assure you that I have yet to meet the breeder who would take a different position. They must not expect, however, that all breeders are willing to occupy the position which the woman did who had been somewhat rebellious against domestic restrictions, and belligerent by nature, when visited with death, and her husband being afterwards asked "Was she resigned?" replied: "Resigned? Hell, she had to be!" When it is necessary to be resigned, you will find the breeders always resigned. [Laughter.]

I said suggestions I thought were desirable from a gathering of this kind, and I am quite sure the honorable Assistant Secretary is here for those.

First of all, what can we do to aid the future and forget the past? It seems to me that if those two gentlemen who were most desirous of projecting some resolution into this meeting will get their organizations to meet and appoint committees to meet with like committees from other organizations to frame an intelligent, coherent, self-executing, complete sanitary measure to meet the Federal, State,

and local situations, they will have served their interests most admirably and will aid the honorable Secretary and his department in getting what they wish. [Applause.] It seems to me we have one clear duty before us, a splendid opportunity for a good, broad, statesmanlike action on the part of these various associations in conjunction with the department so ably represented here, namely, to go to Washington through proper representation and join in the effort. I am sure the Department of Agriculture will frame a sanitary measure for national action which will correlate itself perfectly with such State legislation as these various committees should secure from the States, carried on down through the local community; because, in order to have these laws successfully operated and satisfactorily self-executing, it is necessary to have not only the National and State legislation, but the cooperation of the local community where the law is to be applied. I am expressing my views on the subject, and I have given some thought to it. Of course you could have community legislation, but you can have community recognition in and under such State and National laws as can be framed in this manner; and that is the only way, I assure you, that this question can be satisfactorily settled and properly handled, in my judgment. The National Society of Record Associations has already appointed its committee to take up this subject, and we are going to cooperate to the fullest extent in our power with the department at Washington, and also with the various State legislatures or committees of those bodies. We have framed a set of laws—and when I say “set” I mean necessarily the State laws—so correlated to the national law that in the future we will avoid this friction and, if possible, secure more perfect protection against the spread of these dreaded diseases.

I am directed to state to this convention three positions which the National Society of Record Associations has taken. First of all, and perhaps most important in all this legislation, is the absolute requirement of both State and Federal Governments that full compensation shall be made for animals necessarily killed [applause], because there is nothing that stirs more irritation in the individual mind than a feeling that he is being deprived of his property without due compensation provided for him under the Constitution of the United States and all the States. Therefore we have taken the positions squarely that that is the first essential.

The next position we have taken is that in our opinion the system of quarantining which has been in force during the last two outbreaks of foot-and-mouth disease is wholly inadequate. We stand for restricted but effective quarantine. The area quarantined, in our opinion, is not adequate, and experience, I think, for the past year and a half or two years has clearly shown that. What do we mean by restricted quarantine? We mean this: If there is an outbreak in a county on one farm or on two adjoining farms, there should be a sufficient area surrounding that farm or those two farms taken into the quarantine to make it absolutely complete and a safe quarantine; and then a quarantine should be put on there that is a quarantine and not an excuse. When I say a quarantine, I mean that the people on that farm should be obliged to stay there unless they leave under disinfection applied by competent persons. And when they come back again they should be again disinfected. There isn't any danger,

I understand, from leaving these places if you are properly disinfected. Here in Chicago they go in and out all the time under disinfection. Therefore the quarantine isn't half as burdensome as people imagine if it is intelligently and properly applied. But it should be an effective, absolute quarantine. And then I would have it provided in the law that if a person had a herd of animals and violated that quarantine the penalty should be the immediate extermination of that herd. That will compel cooperation if the man is sincere; and if he isn't, he isn't entitled to much consideration.

The next point we make is that, where it is safe and possible to do so, the seed stock, the pedigreed animals, should be preserved under the system of quarantine that I have referred to. I realize that this is a question upon which there is a difference of opinion. But, gentlemen, I want to make one appeal to the intelligence of this audience. The honorable Assistant Secretary outlined before us in splendid vision this morning the possibilities to be accomplished if we apply intelligence to the great opportunities lying before us in this country. But one of the very bases from which we must proceed in that magnificent development is the animals which will improve and develop the animal industry of this country, and those are known as the seed animals. These splendid animals have been recognized almost from time immemorial. I remember as a boy reading those beautiful fictions of Sir Walter Scott where he fires the imaginations of youth; and you remember he describes in one of those the king, splendidly garbed and majestic in carriage, riding up to the place of coronation drawn by twelve white Flemish horses. It has been from all time the pride of all countries to have some splendid blooded animals as foundation stock on which the glories and the progress of those countries might be built. The men who have given their time and their means and their energy to build up these seed stocks, this seed foundation for improvement in animal development, do not ask consideration in these matters; but, in the name of progress and development, we demand the protection of that seed stock when it can safely and properly be done. I am not going to enter upon a discussion with the veterinarians, whose opinions I am willing to concede are probably more profound than mine; but I am bound to take notice of experience, and after all is said and done, experience is the best guide we can have when it is sufficiently broad to justify consideration.

We had nearly 800 animals here in Chicago a year ago last October that were infected with this disease. The choicest of all the breeds of dairy animals in the world were gathered there. The most splendid seed stock it is possible to produce were gathered there, and, unfortunately, infected; why or how I am not going for a moment to discuss, because it is past, it is buried, and I am going to let the dead bury its dead so far as I am concerned. But the owners of those animals, not rebelling against law, but realizing the importance to the future development of the dairy industry of this country, of the preservation of those animals, requested that they be preserved, and the honorable Assistant Secretary and his superior, the Secretary of Agriculture, seeing the need of that, joined in the effort, and their efforts are crowned with splendid success. We have to-day every one of those animals scattered throughout

this country, performing the functions for which they were created, and representing as they still do the choicest of all the dairy breeds. [Applause.] I saw one of those animals sold here within two weeks for \$2,500, going as the foundation of a splendid herd in the southwestern part of this country; and there stands in the possession of the former owner of that animal several of his offspring, the most splendid young representatives of that breed we have. Col. French, who is in this room, has a cow that was in that unfortunate inclosure and which has come out of it and performed her function of both reproduction and production in a wonderful way, making a marvelous record of the production of butter fat and giving birth to two calves since, as I understand it. So every one of those animals has gone on performing its function, contributing to the welfare and development of the animal industry of this country its proportionate share without hindrance, without embarrassment, and without impairment in any way. Under those conditions, isn't that an example that is worthy of consideration? Isn't that the experience that is to teach us something?

I am going to say one thing, not in the way of criticism, or not for the purpose of criticism. Although it may take on to your minds that form, it is not so intended. Here were 800 animals that had gone through the disease and had recovered. Wouldn't it have been wise for some of these veterinarians—and I appeal to you gentlemen as veterinarians who are interested as we are in the development of this country—wouldn't it have been wise for you to have taken some of those animals and put them through the test to see whether they were still germ carriers or whether they were not? We can not make progress unless we make effort, unless we experiment, unless we try to learn, and we have an opportunity presented to us here in the past 14 or 18 months that is almost unparalleled, and I am sorry we haven't availed ourselves of the opportunity.

In addition to what I have suggested about legislation in uniform and effective sanitary measures, there is another thing that ought to be done. It is impossible for the Secretary of Agriculture or his assistant to go to Congress and say, "We want this appropriation" or "We want that appropriation," and meet with the success they ought to. I would like to see an appropriation made by Congress of a sum sufficient so that that department could carry on research work for the next 10 years in connection with these diseases and find what, if any, preventive measures can be developed, or what means can be devised to better preserve and protect our animal industry. In addition to that, I would like to see an appropriation made sufficient each year to enable our department to carry on its work in the broad, expansive way that the Assistant Secretary so splendidly outlined to us this morning. We can do that by going down there as taxpayers, as voters. I notice that when you meet the man in Congress and say "I have 10 votes" it has a good deal more influence now than if you say "I have \$10." [Laughter and applause.] Let us get together and get behind this department and help them in their efforts to carry on and develop this splendid work for us and with us.

We are here representing various interests, but let us remember that, after all, we are each and all American citizens. We are not here to put anybody in the hole. We are not here to take advantage

that this meeting might afford, either for publicity or for the purpose of inflicting embarrassment. We are here to aid as American citizens the honorable Assistant Secretary and his superior in this splendid work. I hope and believe that I voice the sentiment of everyone when I say that there isn't a man here who doesn't want to join hands with the honorable Assistant Secretary and his superior in that department in every way possible, and we will absolutely refrain from doing anything that might tend to cause embarrassment. [Loud applause.]

DISCUSSION.

MR. SPANN. We have heard from a distinguished veterinarian in telling us about what had been learned in Germany and other countries about foot-and-mouth disease, and I listened with a great deal of interest to it. I waited to have him tell us something about what we learned about foot-and-mouth disease in this country, and I waited in vain. Now, as Mr. Munn says, we don't want to embarrass anybody; we want to help. I had 16 animals that had foot-and-mouth disease in Chicago, and I issued an invitation to the veterinarians of the Department of Agriculture to come to my farm and see these cattle. They went through the disease as you know in Chicago: they went through the test they had there; and after they were shipped out by the Federal authorities, the cattle came to Kentucky and were all assembled at one point in Henry County and held there about five weeks with check animals, about six or eight young cattle and a dozen or more hogs. These hogs were allowed to run with the cattle constantly. I took the females and put them in a little pasture of about 10 acres, and put two female cattle of my own farm with them, a heifer of about 10 months and a cow. The males I put into box stalls and kept them separate from the other cattle. When they were sent home, our department of agriculture wanted us to keep the cattle on the farm and advised us to keep them separated from other cattle because some of the States would not allow us to ship the cattle that had been in contact with these. They wanted these cattle there for observation. I have kept them there for observation, hoping that some authorities from the Department of Agriculture at Washington would come and look these cattle over and get the information that I wanted to give them; but up to this time none of the authorities came. We had 12 females and 3 bulls. One of those calved at Chicago, and since we have had them home six others have dropped calves in fine condition, and the other five animals are safe in calf, all to the bull that had foot-and-mouth disease. I think this information is valuable to the Department of Agriculture. They don't seem to think so. Instead of getting the information of it from foreign countries—it must be a little old—let them go to our farms and inspect these cattle and get some information so that they can advise people intelligently when people apply to them for information in regard to these cattle.

MR. ADKINS. With all the information that goes through the Department of Agriculture, it seems to me that there should be a policy growing out of that information that would handle this proposition in the future so that it could be fair and just and equitable to all men engaged in the production of certain stock, as has been emphasized by the preceding speaker. There ought to be a policy to preserve stock under quarantine and that will not work to the bankruptcy and

disadvantage of other men located in that particular State where the effort is being made while under quarantine. Take the dairy herd that was quarantined in Chicago, and the other herds which were preserved for a long time. This meant that other States quarantined against this State, to the disadvantage of other men who were producing seed stock, by reason of restricting their market to the State of Illinois. I was talking with a man who was producing seed stock in quite a large way in this State, and he told me that he thought it would be necessary to sell his farm because his trade was restricted to this State. My opinion is that if it is to be the policy of the Department of Agriculture to make conditions so as to preserve the seed stock, it should not be done at the expense of other men engaged in the production of seed stock in that particular locality. I know men by the score in this State who are on the verge of bankruptcy by reason of the fact that these herds were preserved under quarantine so long here, and by reason of the fact that other States were quarantining against them and they were not permitted to ship their stock out of the State of Illinois. When this final policy is formulated by your department, Mr. Secretary, those matters should be taken into consideration; and if it is to be the policy of the Department of Agriculture to make a condition so that the seed stock of this country can be preserved, it should not be done at the expense and possible bankruptcy of the large number of their neighbors who happen to be residing within that immediate imaginary boundary line of the State of Illinois. [Applause.]

Senator WHITE. Don't you think that the quarantine in starting this disease again in your State has done something to injure your stock business?

Mr. ADKINS. I understand that.

Senator WHITE. And we have got some of those quarantined cattle into our States, and they haven't hurt Iowa any.

Mr. ADKINS. But the prolonged quarantine has hurt the business in this State.

Senator WHITE. If you had prolonged the quarantine on that hog serum, you might be better off [Laughter and applause.]

Mr. JOHN C. BAKER. I would like to ask about how large an area the veterinarians consider is necessary for a quarantine. I have a little personal knowledge of the foot-and-mouth disease. I had a herd that got the disease, and there was none of it within 8 miles of them. Here was a jump of 8 miles. It would seem that a small quarantine would not answer. And I quite agree that people should be paid the full amount of their stock. I had 127 pure-bred cattle killed, and I haven't received all my share yet.

Dr. MOHLER. Mr. Munn made the statement that he was sorry that the veterinary profession had not taken advantage of the wonderful opportunity afforded by this dairy-show herd for the ascertainment of the possibility of any of them being carriers of the virus of foot-and-mouth disease. Mr. Munn is absolutely incorrect in that statement. Why were those dairy-show animals held at Hawthorne for such a long period after being quarantined on the first day of November, and not released until the 31st day of May? Why were 50 stockers and feeders placed among them in March and kept there until June. Why were the 50 test hogs fed on the feces and

milk of those show cattle, and 4 additional calves kept there for experimental purposes? The saliva of those dairy-show animals was tested; their secretions of urine, milk, vaginal discharges, feces, the material from between the interdigital spaces, and scrapings from the hoofs were likewise tested, and other methods of exposure were conducted on these 104 experiment animals. I can't understand why Mr. Munn hasn't that information, because we did not release those animals until the Federal Bureau of Animal Industry was confident in its belief that there were no virus carriers present, as a result of those experiments which were the most complete and exhaustive ever conducted to determine this point. [Applause.]

I am surprised at Mr. Spann's statement that the bureau has not inquired about these herds after they have gone back to their home States. As a matter of fact, Dr. Melvin has written letters to the various State officials about these cattle. It is true we have not sent our own men to see all these animals; but we have reports from practically all the herds in the various States as to their present condition. I may say that we have received an adverse report from one herd in the State of Kentucky, so far as the milk production and thriftiness of the animals are concerned, and this herd does not belong to Mr. Spann. It is the one exception, but nevertheless it is a fact that we have received that information. I don't understand why Mr. Spann would make the statement that we have not followed up those animals.

MR. SPANN. I said only my own knowledge of it. You stated the department was confident when you let them go they were safe?

DR. MOHLER. That is right.

MR. SPANN. You still believe so?

DR. MOHLER. Surely.

MR. SPANN. Still the Agricultural Department is advising people not to buy those cattle.

DR. MOHLER. The Agricultural Department does not advise the purchase or the sale of any animals. We are not in that business. It is a commercial proposition between the buyer and seller.

MR. SPANN. When a person wires your department and asks you if he should take an animal into his herd, and you wire them back that you can not advise them to take that into the herd, would you consider that advice not to do it?

DR. MOHLER. I understand the condition you are referring to. A telegram was sent to us with reference to some animal in your State. It was received a few days after this adverse report already mentioned was obtained. The report didn't specify any individual animal or any individual herd, so far as I know. Do you suppose that we would recommend in the face of that report, even had it not been contrary to our policy to do so?

MR. SPANN. You just made a statement that you weren't advising one way or the other.

DR. MOHLER. I wouldn't advise one way or the other. That is a question, as I said before, between the buyer and the seller.

MR. MUNN. I didn't intend to say, Dr. Mohler, that you hadn't made test here. What I intended to say was this: In view of Dr. Moore's statement that he thought it was unsafe to let these animals go out at any period, if I understood him, even beyond 7 months, here

were 800 animals from which you would have got a vast lot of information had you subjected them to test beyond the six months. Of course, when you let them go, you assumed they had recovered and there was no further danger.

Dr. MOHLER. You knew about the 104 animals that were tested?

Mr. MUNN. Certainly; I was there three or four times.

Mr. SWIFT. I am a breeder in pure-bred stock up here at Libertyville. I have been interested in this meeting, and particularly interested in Mr. Munn's speech, in his explanation of the dual government under which we live, and the impossibility of the Federal Government making the laws for the different States. I have noted the remarks of the different speakers that it would be well if we could have the same quarantine law in each State of this Union, and the hope that it might be attained. But all my life I have had that same hope, and heard it expressed, that the divers laws of this country might be alike in all the different States. Our people don't think alike, and they never will, and it is lucky they don't.

In the preservation of these animals, if the animals are to be preserved in the State of Illinois under the authority of the Federal Government, the veterinary department makes many of us that try to ship cattle and hogs and try to conform with these laws awful tired. It is these veterinary departments that make these laws, and these laws of the different States never will agree. And when any man in any veterinary department takes the notion into his head that cattle that are being saved in the State of Illinois are going to be dangerous, and that Illinois is a dangerous State, and its people don't think in same lines, and they put a quarantine upon the animals of the State of Illinois, it shuts the shop of my sales and of my business. If we could all think alike, if all the States would have the same quarantine law, if the seed animals would be saved in one State as well as another, in one county as well as another, I would like to see some practical plan devised that they might be saved.

True, gentlemen, I am not so all impressed with the word "seed" animal as some people are. Nevertheless the pure-bred animal has made the live-stock industry of this country. [Applause.] There is no question but what all honor is due to the breeder of pure-bred animals, because he isn't getting anything else out of it but honor. [Laughter.] Not a dollar has ever come to him. You can go far and wide and try to put your hand on the man who has made money breeding pure-bred live stock. And the breeding of pure-bred live stock has made the prosperity of this Mississippi Valley—no doubt about that. I wish and I hope that this meeting does something to devise some reasonable plan by which this stock might be saved.

Mr. G. WATSON FRENCH. The Bureau of Animal Industry has one case where their suggestions that the animals be under observation has been carefully carried out. I had a rigid quarantine on my farm for 90 days, and the veterinarians in Iowa omitted no act or deed to discover something wrong with my animals; and the end is not yet. They were there just two or three days ago, and I expect they will continue to come, and they are perfectly welcome to come until those animals die. I am not afraid that anything is going to happen to those animals, but I am afraid that the great-granddaughters are going to be carriers of the infection.

MR. TOMLINSON. If a stranger had come into this room without any information as to what has transpired during the last six months, and had heard the honeyed and eloquent talk of our friend Mr. Munn, he would have thought that the dairy interests, particularly the pure-bred dairy interests represented at the stock show at Chicago, were the one and only friend of the Department of Agriculture and the Bureau of Animal Industry. However, after the many insidious and continual attacks on the bureau through devious methods, I am glad that the dairy interests are willing to stand with the rest of us producers trying to solve this question in a sensible, reasonable kind of a way, and we welcome them into our kind. We do not stand second in our support of the Department of Agriculture or of its very efficient Bureau of Animal Industry. We have had continuous dealings with that bureau. We find it ably officered by conscientious and capable men, and I am glad to make this public expression of the views of the great majority of the producers of this country whom I have the honor to represent. [Applause.]

MR. VROOMAN. The next paper on the program is a paper by Mr. Glover, associate editor of *Hoard's Dairyman*, on the topic "Economic effect on business men as well as farmers of temporary outbreaks and of permanent presence of live-stock disease."

ECONOMIC EFFECT ON BUSINESS MEN AS WELL AS FARMERS OF TEMPORARY OUTBREAKS AND OF PERMANENT PRESENCE OF LIVE-STOCK DISEASE.

By A. J. GLOVER,

Associate editor, Hoard's Dairyman, Fort Atkinson, Wis.

It is unnecessary for me to state to this audience that it is impossible for anyone to determine the losses sustained by our live-stock industry through various kinds of diseases. The best a person can do is to give approximate losses and to state in a most general way their effects upon our commercial interests. In trying to present the economic effect of the temporary and permanent presence of foot-and-mouth disease I find myself very much dependent upon others for my information. I have taken abundantly from books, pamphlets, articles, and experiences in the preparation of this paper, and I am forcibly reminded of Kipling's verse setting forth the practices of all writers. He says:

When 'Omer smote 'is bloomin' lyre,
He'd 'eard men sing by land an' sea;
An' what he thought 'e might require,
'E went an' took—the same as me!

The market-girls an' fishermen,
The shepherds an' the sailors, too,
They 'eard old songs turn up again,
But kep' it quiet—same as you!

They knew 'e stole; 'e knew they knowed.
They didn't tell, nor make a fuss,
But winked at 'Omer down the road,
An' 'e winked back—the same as us!

May I not express the hope that you, too, will wink at me as I pass down the road.

We have gathered here in the interests of our live stock, an industry of marked importance to our agricultural welfare and one that touches in some way the welfare of every living soul in our country. What we do and say here can have but one motive, and that is to provide such comprehensive plans for the treatment and handling of contagious animal diseases as will provide for the least loss to our live stock and the least inconvenience to the owners of live stock. I shall confine my efforts to foot-and-mouth disease, briefly mentioning its history as it relates to the economics of the question, and citing its ravages and losses and its effects upon the live-stock interests.

History does not record the origin of foot-and-mouth disease, but for years it has been indigenous to many of our foreign countries, especially in Europe and Asia. It came to us for the first time in 1870 from Great Britain through Canada and spread into New York, New Jersey, and New England. It spread rapidly wherever cattle were exposed to it, but since the only movement of cattle was from west to east, as Dr. James Law says: "Its career was stopped at the seashore, with no susceptible stock to attack. The same result was reached both north and south of the Canadian line." In later years, prior to 1883, when the American quarantine of imported stock was imposed, various arrivals introduced the infection, and this spread it through the herds in which the imported stock was placed. By refusing all sales for some months, however, the owner of each herd allowed time for disinfection and the plague did not extend beyond the new center thus planted.

In 1902 another and more serious outbreak was discovered in Massachusetts about the middle of November. It spread at this time over Massachusetts, Vermont, New Hampshire, and Rhode Island, and was not eradicated till May, 1903. Slaughtering of every herd infected and disinfecting premises were the measures promptly adopted after the disease was discovered. In 1908 the disease again appeared and spread to 23 counties in four States. The fifth and most serious outbreak that this country has ever experienced was discovered in Michigan about the middle of October, 1914. This outbreak spread into 21 States and the District of Columbia. Up to July 15, 1915, 3,021 herds were attacked, these herds containing 69,742 cattle, 73,574 hogs, 8,742 sheep, and 99 goats, or a total of 152,157 animals.

The cost of the early outbreaks of foot-and-mouth disease were small as compared to the latest. There are no estimates, so far as I know, of those that took place in 1870 and the early eighties. In 1902 and 1908 it cost the United States for eradication of the disease about \$600,000, or about \$50,000 a year for the 12 years to which this expenditure may properly be charged.

The outbreak in 1914 and 1915 has cost many times more than all of the others combined. Up to July 15, 1915, the total appraised value of all animals slaughtered was \$5,243,138; burial expenses, \$156,049; and property destroyed by disinfections, \$220,158; or a total of \$5,618,345. This makes a cost per year of \$802,763 since 1908. This at first glance seems like a startling amount for a country to expend to bury and destroy a contagion. But let us turn our attention to a few instances in countries where foot-and-mouth disease runs its course, or, rather, where quarantine and disinfecting methods are used for eradication.

Prof. B. Bang, in an article published in the *Journal of Agriculture* in London, November, 1912, states that in 1872 in the French Department of Nièvre more than 20 per cent of the calves and over 22 per cent of the pigs were destroyed by the disease in the course of two months. He reports that in Bavaria, in the summer of 1892, over 3,000 head of cattle died from it, and in 1896, in Wurttemberg, 1,500 perished. At Barcelona, Spain, there died, in 1901, 50 to 70 per cent of the young cattle. In Transylvania 9.4 per cent of 7,498 cattle died in 1899. He states that in Schleswig-Holstein the disease occurred in 1910 in a distinctively malignant form. He further states:

It is not these comparatively rare cases of great mortality that cause the chief trouble. It is the acutely infectious nature of the disease which makes it so serious. When it is left alone it spreads to an enormous number of farms, and with the present quick and easy means of communication it may easily extend to all the farms of a country or province, with the result that the aggregate of numerous small losses represents in the end an enormous sum. Thus, the loss suffered by Germany in 1892, when over 1,500,000 head of cattle, over 2,000,000 sheep and goats, and over 400,000 pigs were reported to be infected, are estimated at over 100,000,000 marks (\$25,000,000), and this year (1911) the loss is sure to be much greater.

We must not lose sight of the fact that in Germany the disease is indigenous and each year heavy losses are sustained. The losses mentioned by Dr. Bang in 1892 and 1911 are but high-water marks. The loss in 1892 is nearly five times greater than our loss in 1914-15. Germany in 1912 had 20,182,000 head of cattle, and the United States in 1914 had 59,329,000, valued at \$2,500,000,000. Our loss from 1914-15 upon this valuation was 0.022 per cent. Valuing Germany's cattle at one-third of ours, as we have three times the number of cattle, she sustained a loss of 3 per cent in 1892 and more in 1911. In Germany the disease is so widely spread that it is hopeless to try to destroy it by slaughter, as is practiced in this country. Quarantining, disinfecting, and letting the disease wear itself out, so to speak, are the methods employed by her. However, assuming we adopt a practice of quarantine similar to that now existing in Germany, and that our losses will be no greater proportionately, then we could expect this disease to cost the farmers of this country not less than \$75,000,000 to \$100,000,000 annually. Remember, this expense would doubtless be borne by the farmer, whereas under the slaughter system it is largely borne by the Nation as a whole. In addition, it is well to remember that the Government would be under an enormous inspection expense, and there would also be a contingent disorganization at times of the business of live-stock sales.

Since November, 1914, Denmark and Schleswig-Holstein have been suffering with a terrible outbreak of foot-and-mouth disease. Our correspondent in Denmark interviewed Dr. Bang, and he made the following statements to him, which were published in the issue of *Hoard's Dairyman* of September 10, 1915:

It is quite true that there is a considerable decline in the number of herds attacked. It was as high as 300 in the week; now it is down to 63. But even 63 is an alarming number, so that there is no reason for giving people the impression that the danger is past, because such is not the case. My opinion is that if the disinfecting, isolating, and other measures adopted to stamp out the disease are persisted in with unabated vigor, there is hope of its speedy eradication. We should learn from the experience of Schleswig-Holstein, where the disease reached its height in March, 1915, i. e., 1,500 herds of which 500 were attacked during the previous 14 days. In June

this number had declined to 853 herds, of which 341 were attacked during the previous 14 days, whilst in July the number of herds attacked increased to 1,800. The abatement of the disease in June caused the people to relax their efforts to stamp it out, and then it broke out more vigorously than ever.

The present Danish outbreak is the largest we have had since I began to deal with such matters in 1880. In 1892 only 400 herds were attacked, and then a number of years passed during which there were only sporadic outbreaks that were quickly stamped out. In 1911-12 no fewer than 1,285 herds were attacked, but this outbreak was also successfully met and eradicated. From November, 1914, up to the present (Aug. 5, 1915) the existence of the disease has been ascertained in no fewer than 5,734 herds. And the end is not yet. The ravages of the disease have been greatest on the islands of Zealand, Funen, and Lolland, whilst Jutland has escaped in a remarkable way, only 100 herds near Aalberg being attacked. The fact of the matter is, the Jutlanders are careful and cautious; as soon as they hear of an outbreak in the neighborhood martial law, so to speak, is proclaimed and every necessary precaution is taken; and this is, in truth, the only thing that helps.

The Zealanders and natives of Funen are of a more happy-go-lucky nature, and their islands are most thickly populated. These are important factors, because the intercourse between farms being greater the risk of transmitting the disease is multiplied many times by the happy-go-lucky methods.

The extent of the outbreaks in 1911-12 and 1914-15 is as follows:

	Number of herds at- tacked.	Total number of cows.	Total number of pigs.
1911-12.....	1,285	48,000	34,000
1914-15.....	5,734	200,000	130,000

Cows suffering from the disease go back in their milk to such an extent as to entail a loss of \$5 to \$7.50 for each animal. If we take \$6.25 as the average, the loss of milk alone amounts to one and a quarter million dollars.

In addition to this the mortality in 1911-12 constituted one-half per cent for adult animals; three-fourths per cent of young stock; and over 23 per cent for calves. In 1914-15 the percentages all around were higher; 37 adult animals died at Koselitz and 100 at Brattingsberg on the island of Samso. Nearly all the young hogs and many adult hogs attacked by the disease died also.

The only things that help are care, caution, isolation, and regular disinfection. Laxity in regard to these things will entail still larger losses than those already sustained.

The benign form of foot-and-mouth disease has led a few to believe that it is not so costly as it is held to be by those whose experiences have given them opportunity to study it in all its various forms and to comprehend its results.

I quote from an article by Dr. V. A. Moore, Ithaca, N. Y., entitled "Economic significance and methods for control," the following:

In some outbreaks the disease has been extremely malignant. Fleming stated in 1875 that it had been calculated that the average loss from death in recent outbreaks in localities where it has been severe in Great Britain was 10 per cent. Friedberger and Fröhner state that at times it is so malignant that from 5 to 50 per cent of adult animals and 50 to 80 per cent of the young die. Dr. Cope at the International Veterinary Congress at Baden in 1899 stated: "It is true that foot-and-mouth disease rarely assumes a fatal character, but the fact that nearly all classes of animals on the farm are susceptible renders the indirect losses much greater in the case of foot-and-mouth disease than rinderpest or pleuropneumonia, which only affects cattle. In my country, where it existed for at least 50 years, it has caused enormous loss and inconvenience, greater than that of all other contagious diseases of animals combined." Hafner, of Karlsruhe, gave, at the same congress, an account of the serious ravages of the disease in southern Germany. He stated that it had prevailed for a longer series of years and that it had caused total losses much

greater than those of all other epizootic diseases. Millions of animals and tens of millions of dollars worth of property have been lost by its ravages.

Although the mortality of foot-and-mouth disease is, as a rule, not heavy at the time, there are numbers of instances recorded where this is not the case.

Dr. Moore further states:

In the outbreak in New England in 1902 several herds were retained in quarantine for some months, but the loss of udders and other secondary troubles caused their owners to request the Government to destroy them after the manner of other herds.

These statements are sufficient to point out the probable outcome if this disease is allowed to become permanently established in any country.

The total loss from foot-and-mouth disease is not confined to the shrinkage in milk flow and flesh and the loss of animals through death, but there is the inconvenience of having the disease; the interference with the buying and selling of cattle for breeding and feeding purposes; the necessity of carrying fat cattle after they are ready for the market, which entails expense; prices of live stock are depressed, and the banker and the merchant also suffer. The railroads lose traffic and are forced to the expense of disinfecting their cars, which in time means higher traffic rates. In short, there is scarcely any business, no matter how far remote it may be from our live-stock interest, which does not have to share at least a portion of the expense of this disease.

It is not difficult to comprehend that wherever foot-and-mouth disease makes its appearance the whole economic system of business is affected; that it is a highly contagious and infectious disease and spreads rapidly if given the opportunity; that it is the most dreaded cattle disease in Europe, not excepting rinderpest or pleuropneumonia; and that it takes a heavy toll upon our live-stock industry, no matter what system is used in its eradication. In countries where the disease is indigenous the quarantine and disinfecting method of eradication is usually followed, but in some instances the slaughter and disinfecting method is practiced. In our country we have adopted the slaughter and disinfecting method, as they have in Sweden, Australia, New Zealand, or in all countries where the disease is not indigenous.

I am sure that all persons who have studied the economic effects of this disease are unanimous in the opinion that it is better and cheaper to slaughter all cattle not pure bred. There are some who believe it is a serious mistake, a costly blunder, to slaughter registered cattle. No one doubts for a moment the value of good blood and its uplifting influence throughout this broad land, but this is not a sufficient reason for treating pure breeds any different from grades. There are other factors which are potent. The quarantining of herds on farms is impossible; at least countries which follow this method of quarantine can offer no marked examples of signal success. I am cognizant of the fact that the dairy show herd was effectively quarantined, but conditions under which this herd was quarantined were vastly different from those found on the farm. If we simply consider the feasibility and cost of quarantine or slaughter of the individual pure-bred herd, then quarantine for recovery would be the cheaper and better.

I put this question to former Governor Hoard: "What would be to your greatest interest if foot-and-mouth disease came to your herd, slaughter or quarantine?" "So far as I am concerned," he said, "it would be cheaper to my interest to quarantine my cattle; but this course would not be the best for the dairy interests of Wisconsin and the entire Nation, and neither my country nor myself have a right to consider my purse against public welfare."

For the individual the quarantine method to permit recovery would be the most efficacious in some instances; but considering the dairy interests collectively, it is very doubtful whether we would be justified in attempting to save any herd afflicted with foot-and-mouth disease, unless the contagion was widely spread and indigenous.

It may be said in reference to pure-bred cattle that the chances of many herds having it even in the worst of outbreaks is very small. In the outbreak which we have just passed through, where 3,021 herds were infected, but few pure-bred herds besides the National Dairy Show cattle had the disease. Fortunately, the dairy-show cattle could be effectively quarantined.

Should some one come forward with a plan that would provide a rigid and effective quarantine, and if State laws were passed that would give our officials power to enforce the necessary rules and regulations, it might become feasible to save the pure bred. But nothing so hopeful appears upon the horizon. There are too many ways for the infection to spread. We can not quarantine flies, birds, rats, mice, dogs, cats, nor even man, with our present understanding and methods. Countries far more strict and efficient in governmental matters than ours have failed; and since we have never suffered any loss that compares with some nations I have mentioned, we would be foolish in the extreme to change materially our methods of handling foot-and-mouth disease.

There is no question that we should take steps to provide full compensation for all animals destroyed for the protection of our livestock industry. It is a mistake to think that live stock is slaughtered to protect the individual. It is done to protect the entire population, and for this reason the entire country should bear the expense of slaughter. It is not as important to the individual to have his pure-bred cattle slaughtered as it is to the Nation; then in all fairness let the Nation bear the entire expense.

Some men have come forward with the claim that they have a cure for the disease, but a cure is not the prime question. Suppose the cattle were cured, and the infection spread from them, what good would that do? The overpowering question is to stamp out the disease and kill the infection. That is the crux of the whole matter. Fooling with the contagion is simply playing with fire.

DISCUSSION.

MR. H. B. WELCH. The speaker just leaving the platform spoke of the economic losses. We live down there in McDonough County, where there is a hotbed of foot-and-mouth disease over the whole county. It seems to be a comparatively easy matter to eradicate the disease, and we have done so in our neighborhood twice with just a little cooperative effort on the part of the farmers along with the Federal men and State men. Last winter it was introduced into our

neighborhood through the instrumentality of hog-cholera serum. Inside of 24 hours from the time it appeared there was not a herd of cattle left within 3 or 4 miles of that infection. The lid was put on and kept on. The same way we handled the outbreak in hogs. We had an outbreak down there in August. We were about 8 miles removed. We paid a little attention to it then and used ordinary precautions. It came in our direction, twice within the 3-mile limit, but we organized a vigorous campaign. It was a common sight to see roadways nailed up with plank fences a mile away from infected farms. Everybody inside stayed in, and everybody outside stayed out. They also had signs up on pasture gates, "Keep out," "No trespassing allowed."

Now, we are up against a problem. We have eradicated the disease from our section of the country. We have cattle there that have eaten the 1913, 1914, and taken a large slice out of the 1915 crop. We ought to be free. Just whose fault it is we have not been able to ascertain. The Federal board says we can go to market with our stuff if we can find a place to market. We feel we have quite as clean a lot of cattle as anyone, 15 miles removed from any source of infection we know of. I want to devise some way in which the veterinarian and the other man may strike a happy medium.

Mr. VROOMAN. Any further remarks on the paper just read?

Mr. EMBRY. I would like to ask what is your idea when one State is quarantined? For instance, take the State of Kentucky. In the case of an outbreak 5 or 6 miles from the line of Tennessee, farms 100 miles off are quarantined. Animals just over the line in Tennessee are free. They could come into Kentucky or go anywhere. That always has been a knotty problem with me.

Mr. VROOMAN. We will take that up to-morrow. There is going to be a paper on that subject, and we will discuss it from every angle. It is a very hard problem, as everyone knows. To-night we are going to take up some questions that are not on the regular program. If there is no further discussion we will now adjourn to 8 o'clock, to meet for our informal program of general discussion.

EVENING SESSION, MONDAY, NOVEMBER 29, 1915.

Mr. VROOMAN. This evening we have decided to devote to a general discussion of topics relating to the general subject we have met here to discuss, and while we shall have to limit speakers as to time, we are very glad to hear anybody who has any information at his disposal that he would like to give us, and we shall be very glad to hear all sorts of opinions and to have all sorts of points of view brought out. That is what we came here for. I shall be glad now to recognize anybody who cares to speak.

Dr. ORMSBY. It seems to me that there is quite a divergency in the ideas and opinions presented here. To my mind, one of the most important points relative to this proposition so far has not been touched upon at all. I spent some 25 years right here in Chicago in scientific research dealing with human and animal ills. Of course, my time has been applied more to dealing with human ills than it has with the animal species. There is but one law of disease, and there are no new diseases. We have the same diseases to-day that

we had 10,000 years ago and will have 10,000 years hence, because there is a basic principle underlying all these afflictions of both man and beast.

If you want a definite, permanent quarantine against the recurrence of hoof-and-mouth disease you have got to begin with the feeding of the animal. The chief aggravator of the hoof-and-mouth disease—and the same applies to every disease of both man and beast—is dietetics, the stuff that goes into the organism of the animal. Chief among those aggravating substances is this pickled food that you are feeding to stock to intensify their productive powers. Everyone knows that corn is a heat-producing food, intensely so. When that corn is put into a silo and raised to 150°, turned practically into alcohol, and then fed to these animals, along with other grains and other intensifying substances, that animal's blood is polluted. It is filled with a fever, and the system gets into an intensely, highly vibrated, feverish state, so that the least thing that upsets the system in any way would cause an outbreak of that fever in some way or another. This is something that is being proven up now right here near Chicago by some farmers who have taken sufficient interest in it to go into it scientifically and work it out and see whether it is a fact or not. So far, they all agree with me, that the handling of the hoof-and-mouth disease is all a matter of diet. Dr. Hughes, I think it was, said it is all a matter of feeding. I will take any animal and produce the hoof-and-mouth disease in a reasonably short time just by feeding it alone; and I will take your food—the food that you are feeding these animals—to do it with; that and nothing else. [Laughter.] Not only that, but I will cure it afterwards—bring them back again where they were before. [Laughter.] This demonstration at Hawthorne is evidence that the disease can be cured. Any disease that can be cured can be prevented by proper feeding and proper diet. I claim there is absolutely no truth in the germ theory as a cause of hoof-and-mouth disease; nor is there any truth in the germ theory relative to any disease of man or beast. [Great laughter.]

Mr. VROOMAN. We are very fortunate this evening in having with us Dr. Rutherford, of Canada, who is the predecessor of Dr. Torrance, who spoke so ably this morning. I know you will all be glad to hear from Dr. Rutherford to-night.

REMARKS BY DR. J. G. RUTHERFORD.

Dr. RUTHERFORD. Mr. Chairman and gentlemen, I didn't expect to be called upon to-night, although I have been attending the meetings all day, and I may say incidentally enjoying myself immensely. It has been a very interesting and very entertaining meeting, and we have certainly, especially this evening, received some most interesting information which was as gratifying to many of us as it was entirely unexpected. I will say, however, that I am getting to be somewhat of an old-timer at the veterinary profession, and that the statements which were made so emphatically and evidently with such good faith to-night were quite common not so very many years ago. I remember when the question as to the spontaneous origin of contagious diseases was an exceedingly live one, and our elderly

friend is by no means the only old gentleman that I have heard give vent most emphatically to the theories which he advanced this evening.

The problem which has confronted you in the United States during the last year and a half, perhaps the most serious which has confronted the country since the establishment of the Bureau of Animal Industry, has been—speaking as an outsider—exceedingly well handled. The feat which has been performed by the United States Bureau of Animal Industry in face of the difficulties and the obstacles confronting it is a marvelous one. Perhaps some little improvement might have been made in the earlier stages of the outbreak, but once the outbreak became generalized the disease would have spread through this continent. The success which has attended the efforts of the veterinary service of the United States and of the various individual States of the Union has been gratifying beyond measure.

As a young man I was very familiar with foot-and-mouth disease in Great Britain. I knew it very intimately. I saw the policy which was followed at that time—quarantining, letting the animals recover—because even then, even in that now almost prehistoric age so far as veterinary science is concerned, we knew that the disease could be cured. The animals were allowed to recover and were kept in quarantine, but the loss which was sustained by individuals and by communities throughout Great Britain was simply most distressing. I can give you an illustration which I had in my own experience as a young man where we had £3,500 worth—that would be \$17,500 worth—of cattle ready to ship—fat cattle for the Christmas market. The disease was brought onto that farm and those big fat cattle all took it. None of them died; they were well taken care of and well nursed; but it was simply a case of beginning again at the beginning to fatten them over again for another market. These are the losses that count. It isn't the deaths of the animals, but it is the loss, the continual loss which is going on with the policy of quarantining and disinfection. The people of Great Britain are slow to learn. The department of agriculture over there in London is a very slow-going, very much behind-hand concern compared with the Bureau of Animal Industry and compared with very many of your State departments, and they are very slow to learn. It took them a considerable time to realize that the policy which had been followed in regard to foot-and-mouth disease on the Continent in Europe was not a successful one, not one by which they could ever hope to get rid of the disease. During the last 15 years they have followed the policy of slaughter. They have found out that that is the only successful way in which the disease can be handled.

There is one thing that hasn't been brought forth to-day. It is rather strange, because Americans—we are Americans in Canada, too—but the people of the United States are not, as a rule, very backward in letting the rest of the world, and each other as well, know about the tremendous size of their country and the tremendous resources which that country possesses. When one thinks of what foot-and-mouth disease would do to the live-stock industry of the United States, and incidentally of Canada—because if it once got fairly disseminated all over the United States it wouldn't be very long before it would invade both Canada and Mexico—when one

thinks of what it would mean to have that disease all over this country, quarantining herds here and there and yonder, you would never get rid of it. With modern methods of transportation, with modern rapidity of transit, you would never get rid of it. You would suffer for all time to come from this great bovine scourge. Therefore I say it is all the more gratifying that the success which has attended the efforts of the bureau is so evident and so plain that he who runs may read. I don't know why there should be any question at all in regard to the work of the bureau. I was for a good many years in charge of similar work in the Dominion of Canada. I admired exceedingly the work of the late Dr. Salmon and the work of his able successor, Dr. Melvin, and the staff of the bureau. It is a model for any country in the matter of the control of livestock diseases.

The great difficulty which you have here has been touched upon repeatedly to-day, namely, conflict of authority between the Federal Government and the States. When I took office in Canada, some 13 or 14 years ago, I found the same thing existing constantly over there. Of course, we haven't got anything like the same number of Provinces as you have States; but there were a number of our Provinces which had started in in an endeavor to control the diseases of animals within their own territories. Without going into the differences in constitution between the two countries, I may say that I was successful, by making personal representations to the governments of these Provinces, in getting them to withdraw from the field of control of animal diseases and bringing the whole of that work absolutely under the guidance and control of the Federal department of agriculture. As a consequence we have no conflicting authority such as is now troubling you. The animal contagious-diseases act is a Dominion act, and the regulations made thereunder are Dominion regulations, and they extend over the whole Dominion and apply to every part thereof, so that difficulty in the case of Canada does not exist.

One gentleman—I think he was a member of the legal profession—said to-day that the idea of ever reaching an agreement between the Federal Government and the States of this Union on that subject was impossible. There is nothing impossible to a free people, and it seems to me that if this matter is gone about in a proper spirit and by proper methods it should be possible in time. It can't be done to-day, nor to-morrow, possibly not even the day after; it may take some years. But if it is gone about intelligently, and if the matter is presented to your people, intelligent as they are above all other peoples, they will grasp the importance of getting together on a matter of this kind, and to my mind there can be no question as to the ultimate success which will attend intelligent efforts in that direction.

Let us look at the thing for a moment. Somebody said this morning that we kept looking at little details—we kept looking at the trees and we didn't see the forest. Agriculture is the keystone of the national life and prosperity of the United States of America. Can there be any question about that? We have lost sight of it in the tremendous industrial development of the last hundred years, especially of the last fifty; we have lost sight of that basic fact,

that everything that we have we owe to agriculture, to the land. If it were not for agriculture we would have no railways, we would have none of these great commercial or industrial institutions. Our banks would be nonexistent; we wouldn't have anything if it wasn't for the farmer and the farm. That being the case, what about the live-stock industry? We have had lots of so-called farmers on this continent who weren't farmers at all. They were land robbers, exploiters. We have got two English words badly mixed up—development and exploitation. We have been discussing development on this continent, the development of our natural resources; but we have been exploiting these natural resources; we haven't been developing them.

Not a hundred years ago, when your grandfather wanted to communicate with mine, if they were acquainted, he used the same method as Abraham did when he wanted to communicate with Isaac. He either saw him or sent a messenger. There wasn't any other way. A hundred years ago, when a man wanted to travel from one place to another by land, and he could afford to do something besides walk, he used exactly the same means, only very slightly modified, that Pharaoh did when he pursued the Israelites out of Egypt in horses and chariots. There wasn't any other way. A hundred years ago, or a few years over the hundred, when a man wanted to do anything after dark, he used exactly the same apparatus, only very slightly modified, that Noah in the ark did when he wanted to milk the cow after sundown. A hundred years ago the proportion of people in civilized communities who could read and write were about equal to the proportion of people in civilized communities to-day who can't. We have gone ahead so very fast that we have outstripped ourselves; we have run away with ourselves. We have lost all sense of the fitness of things. We are crowding our people into these great, big, overgrown cities, and the temptation is, or has been hitherto, to get away from the farm. Too many people nowadays want to make money without earning it. And we are coming to realize that, after all, agriculture is the keystone, the foundation, of all this great prosperity. The high cost of living is mixed up, as our friend Mr. Hill says, with the cost of high living. Some of us have got it so mixed that we can't distinguish the one from the other.

After all we have got to get down to the farmer, and when we go to the farmer we have got to have sound agriculture, and if we have sound agriculture, we have got to have live stock. If agriculture is the foundation stone of the prosperity of the United States of America, as of every other agricultural country in the world—and there are only a very few that do not come under that head—and if the live-stock industry is the foundation stone of agriculture, then the live-stock industry is the thing upon which the people of the United States have got to depend now and in the future for the prosperity of the whole country. That being the case, it seems to me that with the great, sound common sense and intelligence of this great people, which has been shown many and many a time before, if it can be demonstrated to them that it unquestionably is in the interests of the whole country, of every man, woman, and child in the country, to have their forces so united and so cooperating as to be

able to deal intelligently and successfully with the outbreaks of contagious diseases in this great Republic, I don't think, Mr. Chairman, that you will have any very great difficulty in bringing the level-headed, reasonable men in your country, no matter what State they live in, to a realization of the fact that it is up to them to get together with the Federal Government and with each other and arrange a program on the lines indicated by Dr. Marshall, or on any other intelligent lines which will insure that in the face of a great national calamity, such as we have been almost miraculously delivered from on this occasion, the whole country will present a united front without dissension, without argument, and without failure which must almost invariably—luckily not in this instance—accompany disunion and divided effort.

I trust these few words will sink in and that the reasonable men throughout this great country will get together—it may take six months; it may take a year; it may take five; it may take ten—but it is of vital importance to the welfare of the whole country that it should be done, and I am greatly mistaken in my estimate of the intelligence of the American people if they won't find a way to do it. [Great applause.]

Senator WHITE. Will you tell us how many times you had the disease there during your time?

Dr. RUTHERFORD. We never had it in Canada. Twice in my time and once under Dr. Torrance it was right up against us, but it never got in.

Dr. ORMSBY. Doctor, you made some reference to the old theory that disease is a spontaneous combustion. I would like to ask where this disease got its start—or any other disease?

Dr. RUTHERFORD. There is an active causative agent of this disease. While the manufacture of microscopes has undergone wonderful development we have not yet got a microscope powerful enough to identify the smaller germs. But we do know that the great majority of them are due to germs. Take the bacillus of anthrax. A man might just as well ask where the first duck came from as where the first anthrax germ came from. [Great applause.]

Mr. TOMLINSON. Dr. Rutherford has not had any foot-and-mouth disease in recent years, and I would like to ask him if Canada imports many animal products; and I would also like to ask him what, if any, admission regulations exist in Canada. What are the regulations in regard to other countries where foot-and-mouth disease exists?

Dr. RUTHERFORD. Perhaps Dr. Torrance ought to answer that. I can say that so far as countries other than North America are concerned, our regulations are practically identical with those of the United States. The Bureau of Animal Industry and the health of animals branch at Ottawa came to the very sensible conclusion that if we were going to try to protect the live stock of our respective countries we could not do better than to agree on a common policy. Whenever the bureau makes any change it informs the health of animals branch at Ottawa, and if we at any time make a change, we notify the department at Washington; and so far as animals are concerned we have always followed the same policy. In regard to the importation of animals and other things of like nature from countries where foot-and-mouth disease actually existed, we follow

the same principle. When the disease unfortunately existed south of the forty-ninth parallel and has been providently prevented from getting north of it, we applied the same treatment under the conditions that we do to other countries.

Mr. TOMLINSON. Now tell us of the imports from these countries where infectious disease exists.

Dr. RUTHERFORD. There are very few. We get a certain amount as well as the United States.

Mr. TOMLINSON. Do you get any hides from South America?

Dr. RUTHERFORD. Yes; these generally come to us from the United States, and we accept the guaranty of the Government. [Applause.]

Mr. TOMLINSON. Hides may go through a great many different channels of sterilization after reaching this country and get into Canada in very good condition. They have not had any direct from Argentina for many years, and that is true with meat products.

Dr. RUTHERFORD. Yes; except canned meats.

Mr. TOMLINSON. You have no so-called frozen or dressed meat entering Canada from Argentina for many years?

Dr. RUTHERFORD. No.

Mr. TOMLINSON. Therefore it is a negligible quantity that comes into Canada.

Mr. QUICK. I would like to ask the gentleman how small an importation of disease germs he considers a negligible quantity. [Applause.]

LOSSES FROM QUARANTINE RESTRICTIONS.

Mr. VROOMAN. Has any other gentleman any subject he would speak upon, connected with the general topic of the evening?

Senator WHITE. It seems to me that there should be something done in regard to the payment of losses that are sustained by people that were tied up when quarantine was put on. I spoke of that matter this morning and I think it is a very important matter. Here in Illinois, I understand, there are a great many cattle tied up and they can not get them out, and there is no reason why these cattle should not be slaughtered. I suppose you understand that better than I do.

Mr. VROOMAN. I know they are tied up. I have had some of mine tied up.

Senator WHITE. Is there not some way we can get these to be slaughtered?

Mr. VROOMAN. I would like the business men and farmers to get together and do something on that. This is a problem that the farmer is entitled to have worked out if it is possible to do so.

Senator WHITE. Your veterinarians admit these cattle are free and can be admitted to slaughter.

Mr. VROOMAN. Some of them are. I think I had better have somebody here familiar with the details answer.

Senator WHITE. I understand that is a great deal more loss to the people of Illinois than the value of cattle killed.

Mr. VROOMAN. Some of the animals tied up are tied up because all of the eastern States are quarantined against us. There are various reasons. Mine were tied up in Iowa for the simple reason that there was a quarantine line between us and the nearest central market.

Senator WHITE. That was last winter?

Mr. VROOMAN. Yes.

Senator WHITE. We sustained much greater losses than the cattle that were killed.

Mr. VROOMAN. There are a great number of reasons and each would have to be taken up separately. I do not feel competent to speak on that problem in detail, but we have some men who are familiar with it.

Senator WHITE. Could these cattle not come to the slaughterhouse here and be killed?

Mr. VROOMAN. Is Dr. Houck here? Doctor, what is the situation here now in regard to this problem?

Dr. HOUCK. This is a subject that has resulted in a great deal of discussion. Some plans have been suggested by various interested farmers in regard to how their animals may be gotten to market and utilized for that purpose without spreading the disease. We have never had anyone give any feasible plan. Slaughtering on the farm has been tried. In the first place slaughtering on the farm is a tedious and dirty proposition and holds infection on the premises for a considerable time. If the meat is dressed and sent to market there is a sentiment against the meat for food purposes and it does not find a ready sale.

Mr. VROOMAN. As I understood the gentleman, it was a healthy animal.

Senator WHITE. Didn't you say you were 8 miles from the disease?

Mr. D. H. WILLIAMS. In our county of Whiteside, probably all the foot-and-mouth disease was in the west end of the county, which borders on the State of Iowa. There was a considerable period in which we were unable to ship live stock to the main markets even for immediate slaughter, and farmers in Iowa, very much nearer to the infected farms in Whiteside County, Ill., could ship, while we in the eastern part could not ship. It was the condition that an imaginary State line allowed certain territory to do certain things which farmers farther away could not do. That was what I was trying to make clear.

Mr. VROOMAN. To-morrow Dr. Gibson is going to read a paper on "What are the advantages and what the objections to making States and counties the units of quarantine when dealing with large areas, and what should be the radius of quarantine when dealing with individual premises under usual conditions which obtain in an outbreak of foot-and-mouth disease?" That question of the county quarantine is going to be thoroughly thrashed out to-morrow.

Senator WHITE. That does not get these fat cattle to market. [Applause.]

Mr. VROOMAN. We have had some buffer counties. We had a line because the infection had a way of jumping 50 miles at once, and we sat up nights trying to find some way of allowing the farmer to market his stock, and we could not devise a plan; but if anyone can devise such a plan the Department of Agriculture is anxious to hear from him.

Senator WHITE. I think the people ought to be paid. If they are going to take that man's property for the benefit of the State, the State or Government ought to pay. Regarding the formation

of these societies, I think we have enough of them. We have Mr. Tomlinson's society, and others in Iowa, looking after things in that line pretty well. I don't think it is necessary to have any more than these. In our county they quarantined 6 or 8 miles in one direction and 25 or 30 in the other. That does not seem reasonable at all.

A MEMBER. I think that is due to the fact that they quarantined the whole county when there was an outbreak in any part. They quarantined the whole of Shelby County when they had an outbreak, but they did not quarantine Jefferson County, just across the line; but afterwards they did for a radius of 5 miles in Jefferson County.

Mr. EMBRY. As to the situation in the State of Kentucky, Indiana quarantined against Kentucky. We could not go through there. Pennsylvania quarantined; therefore we had no market to go to. The Government had nothing to do with it. Pennsylvania said, "You can not pass through our State to the market." Indiana said, "Kentucky can not pass through Indiana." We could not get to Illinois. There was no market we could get to. The other States quarantined against Kentucky, and the Federal Government claimed it had no jurisdiction. We could not do anything until Pennsylvania released its quarantine. Jersey City and Baltimore said "Come on," but Pennsylvania wouldn't let us.

Mr. NEWMAN. I want to say that I am not in the employ of the Federal Government. I want to say in the second place that I am not a veterinarian. I am just a plain farmer. I had the responsibility of fighting foot-and-mouth disease in Kentucky, and we conquered it in a short time. Now, I came up here to get something definite. I am firmly convinced that the chairman is right in not having resolutions introduced. In the matter of controlling foot-and-mouth disease the whole trouble is the result of absolute ignorance throughout this country. There has been ignorance in high places and ignorance in low places. The veterinarians were ignorant of this trouble when it first came here, and we have been trying to put the responsibility on the veterinarians. I want to say to you that, in my judgment, there never was a set of volunteers who have performed in any country in the world what the veterinarians have performed for these ignorant farmers. They didn't know anything about the disease because we did not have it here heretofore, and I hope the next generation will know less than those of the present time know, because if we keep it out they will know only from their textbooks and not by actual experience. It has demonstrated that money invested in the cloven-hoof animals and allied industries is safer to-day than ever because the Federal Government has demonstrated, in cooperation with State governments, that they can control foot-and-mouth disease. Any banker accustomed to lending money to cattle feeders can do so with more safety than he ever did before.

We are here, as I understand it, not to abuse each other, not to compliment each other, but to devise, if possible, out of this conference, a means whereby the next outbreak of foot-and-mouth disease can be handled much more readily and much more economically than the one in the past. If I understand the figures right, this outbreak has cost the market at least a billion dollars in the destruction of animals and injury to business. Now, for us to come here and air our troubles and do nothing seems to me the height of folly.

Mr. Chairman, with the aid of your splendid corps of veterinarians—though some of them may have made mistakes—we have eradicated this disease from 21 States of the Union; and the question is, What can we do in the next outbreak to bring about the same results in quicker time and with less loss to the business interests of this country? Recognizing that the foundation of this trouble is absolute ignorance, it seems that this body should take some method of eradicating the ignorance as well as eradicating the foot-and-mouth disease. To that end, I believe the time is ripe for the business men represented here, the stockyards people, the railroad people, the farmers, and the professional men, to form an organization, nation wide, with State branches extending into every county, whose purpose is to cooperate with the Federal Department of Agriculture and to eliminate the things which must have not only caused foot-and-mouth disease but these other diseases that come from time to time.

The tick in the South is the result of ignorance. Some man said here to-day that they didn't pay much attention to hog cholera, but the fact that they have stamped out foot-and-mouth disease in this country ought to convince every man that the annual loss of \$60,000,000 in the United States could be saved if we cooperate and explain what is known about it. I believe it is up to the business men of the country to back up the Federal Government and spread the information into the hamlet on top of the hill or down in the valley or over on the plain, so that when a calamity like this afflicts the country we are backed up by a set of men whose information amounts to something. The reason foot-and-mouth disease exists in Illinois to-day is because a great number of the citizens of Illinois are from foreign countries and they want this Government to operate things as they do in Europe where they come from. I do not care whether it be Denmark, Norway, or Sweden, but everybody who comes to this country can tell you more about foot-and-mouth disease than the Federal Government knows; and the people usually believe them in preference to the Federal or State authorities. In order to bring out this, I move, Mr. President, that you appoint a committee of three to formulate a plan whereby the business interests of the country can organize to confer with you and cooperate with you in instances similar to this. You talk about organizing this country for defense from a foreign enemy—our greatest danger is from within, and we must organize just as much as we do against a foreign foe.

Mr. VROOMAN. While I am not going to appoint any committee to represent this body, if some of you want to get together and agree upon a committee, I would be glad to receive notice of any action you take.

Mr. D. H. WILLIAMS. I am from Illinois, the most abused State in the Union to-day; and I want to take this occasion to state to my friend from Kentucky that we are not more ignorant in Illinois nor more anxious to harbor foot-and-mouth disease than any other State in the Union. We have had over 50 per cent of the foot-and-mouth disease in Illinois, and we did not originate it. We did not grow it here. It came to us. Some of us are 200 miles away from infection, and some fellow over the State line is within 20 miles. I don't think

it is fair, and I don't think any fair-minded man in this room can defend that kind of business. I want to say on behalf of Illinois that we have done everything that can be done. We are working just as hard as we can to clean up this disease. It is practically confined to one county, and that county is 100 to 200 miles away from many of the best breeding herds in this State, and I think it is about time for you to realize that we are not all bad in Illinois and the whole State of Illinois is not a pesthouse.

Dr. DYSON. I am very glad indeed to note the current of thought that is being directed toward this outbreak of foot-and-mouth disease being handled exclusively by the Bureau of Animal Industry. At the meeting of the United States Live Stock Sanitary Association held last February I suggested that it was a national problem and a national liability. It should be handled entirely by the bureau. All expenses should be paid by the National Government. After an experience of one year in dealing with it, I am more convinced to-day than I was one year ago. It has been suggested here to have uniform State regulations. If we wait to get uniform State regulations, there isn't a man alive to-day that will live to see it. It isn't possible to get uniform State regulations, but I believe that it is entirely feasible and practicable and possible to handle this business as a Federal proposition. Then if you can get away from the exasperating quarantine lines, that is county against county, State against State—if the Federal Government will take the handling of this in hand, assume the obligation, it can dictate the rules and regulations to any State in the Union. There isn't one of them that will not cooperate fully and freely with the Federal Government, and I believe that it is the only practical solution of the problem. I don't think it is possible to secure uniform State regulations—absolutely out of the question.

Mr. FRENCH. We have been talking to-day very freely about ten million and sixty million and a hundred million and a billion, and I confess I am a farmer and I don't understand what it means. But I do know that we have buried in the ground several million dollars of good meat, and it is wrong. I am not criticizing the veterinarians; not for a minute. I want to say right now that they knew a heap more about the foot-and-mouth disease than we farmers and breeders did, little as it was that they knew. They have done the very best that they could under the circumstances. They have now a trained organization, and if we have another outbreak they could handle it much better than they did before. But I do want to say this—that they were so busy with the field work that the economic side escaped them entirely, and I do say that it is criminal waste to have buried several million dollars worth of good meat, thereby increasing the cost of living. How that is going to be arranged, the gentlemen, I think, can work out. It certainly can be done in this country, because it is done in Germany and other countries.

Another point. We should encourage every district to send to market at the first possible moment all its fat cattle close to infection. As to the danger of loss by doing that, I call attention to what was done here in Illinois that was most severely criticized by a lot of unthinking people, when they sent 6,000 fat steers from Peoria that were infected with foot-and-mouth disease and slaughtered

them here in Chicago, and nobody knew anything about it until after they had eaten the steaks. They did a good work; they saved over a half million dollars worth of stuff instead of burying it. And I think the policy that should be worked out is to save all that we possibly can to reduce the danger to the immediate community surrounding the source of infection.

Mr. SMITH. A case right in point with the colonel's remarks was an outbreak of foot-and-mouth disease in a dairy herd. About 4 miles away there were 50 nice 1,400-pound steers that would have liked to have gone to market that day. But they couldn't ship them, and they held them about three weeks, and then they determined that one of them was infected with the hoof-and-mouth disease. They drove the other 49 into the trench, shot them down, put lime over them, and there are a hundred people in debt.

Dr. MELVIN. I would like to correct one statement that I think Mr. French made inadvertently, that these several thousand cattle were diseased cattle that were shipped in here. I don't think he just meant that. They were cattle that were in a distillery stable. There were some 9,000 head altogether. The disease broke out in certain sections of these several stables, and we undertook to salvage those that showed no evidence of disease by a physical examination and by taking the temperatures, etc. Those that were diseased were shipped to a rendering plant, not a packing establishment. I didn't want the people here to get the impression that we were deliberately shipping diseased cattle to regular slaughtering establishments for slaughter.

Regarding the salvage of cattle, there were several instances where we were able to do that; but it is a very unfortunate thing that there are not many slaughtering establishments throughout the country that can take care of any considerable number of cattle quickly. Our system of live-stock disposal is such now that we have a very few market centers where this can be done. It would be the height of folly, in my opinion, to undertake to market cattle that were suspicious or that might have been exposed through a public stockyard. With this disease, cattle may appear healthy to-day, and to-morrow or the next day they will be very sick. There is always a period of incubation, between the time of exposure and the time of the manifestation of the disease, which we can't tell. Veterinarians may inspect cattle to-day that in two or three days more would be in the early stages of the disease; and that is the danger of shipping cattle from these exposed centers for slaughter. We have had it illustrated here in Chicago how the disease spread from here, and, indirectly, clear out to the State of Washington. Those are the things that we are afraid of. During the past winter, in the tremendous amount of infection, which was then in the country, the disease spread several times to various stockyards—a regular trail clear down to the seaboard. Those are the things that we wish to avoid.

To answer the gentleman from Iowa, there are sections in McDonough County where cattle could be comparatively safely marketed if they could be sold directly to slaughterhouses and slaughtered there without passing through these stockyards, to run that remote possibility of setting up infection which would be extended all over the country again. We have undertaken to find slaughtering establishments with facilities for receiving these cattle direct, where they would be quickly slaughtered, so that if they had been exposed

to the disease they could be disposed of before this disease would become so developed that the cattle would be infectious. But, at the present time, we have been unable to do that. We have suggested that, in these townships that are considered comparatively safe, they put up temporary slaughtering places—merely a roof with, perhaps, a concrete foundation to keep them out of the mud, and bury the offal, and ship the dressed meat to market. But none have seen fit to take that up. That could be done, and, in communities where there are several hundred head of cattle, it would pay to do it. But, as I say, none of them have seen fit to avail themselves of that privilege. It is universally the practice in England to kill the stock of these infected places by a gang of butchers provided by the Government, and salvage the meat. Their outbreaks are comparatively small. They have one now, that is existing in the southwestern part of England, and that is the method they are proceeding under. Their quarantine involves a radius of 15 miles around the infected premises. The cattle, sheep, and hogs on these infected premises are slaughtered. Those that are diseased are buried, and the ones that are healthy are sold. But they can sell that meat to the nearest town. We have no such system as that. Where can we find in the State of Illinois, outside of a few of the large cities, a place where a man could dispose of a carload of dressed beef? It would have to come here to Chicago, or it would have to go to East St. Louis, or to some such market; and if the men who are handling dressed meat won't take this meat and dispose of it, the farmer can't do it.

Mr. FRENCH. May I reply? He said I made the statement inadvertently. I made it deliberately. We have been told that this disease is the most infectious of all diseases known. It was impossible that these cattle in the distillery should have the disease, and they could pick out the sheep from the goats and not wait for the period of incubation. We are told on the farm, when we get it, that the whole farm is infected, not the northwest stable. That a few of these sick cattle should be taken out and the others slaughtered is to my mind ridiculous. It may have been that within 10 or 12 days the virus would have incubated. If the statements that it is infectious are true, then these distillery cattle were infected, and they were used for human consumption.

Mr. MUNN. I want to make one statement to the honorable doctor from Canada, and also at the same time answer the gentleman on my right, about the ability of the Federal Government to control this situation. The Federal Government has power to regulate only so far as animals enter into interstate commerce. The trouble is that the States are not in harmony, and the gentleman from Kentucky, who says that as long as God lets him live he will not allow an animal in from Illinois, states a condition. You can only have the condition that we all want when the Federal Government and the States adopt a uniform form of cooperation. The Federal Government is just as powerless as I am to adopt a national policy and take charge of the question.

Dr. RUTHERFORD. I thought that I had made my position quite clear. I am, of course, an outsider. My idea was not that the United States Constitution should be violently wrenched in any way, but that when the subject is presented in its full importance to the intelligent minds of the whole people of the United States they would

reach one or the other of the solutions which have just been suggested by the gentleman who has just sat down. I have a somewhat vague recollection of the difficulties that attended the various amendments of the Constitution of the United States, and God forbid that I should hasten any further trouble of that kind. I can not see what is to prevent a lot of reasonable, sensible men, even if some of them are politicians, getting together and devoting their energies to devising a common scheme whereby a common enemy may be met and soundly defeated. There are in every country, in every community, unreasonable people, but it is a very old and sound adage that once you satisfy the reasonable people the unreasonable people can go to the mischief, and there are enough reasonable people to get together and find a solution, and I venture to predict that within the next 10 years they will find a way.

Mr. MUNN. In less than 10 years—much less, I hope.

Mr. BAYARD. In regard to Dr. Marshall's statement I want to make a remark on what happened in Pennsylvania. A man had a dairy herd of 412 animals. He reported that he had what he thought was foot-and-mouth disease. A veterinarian went out on Wednesday. The disease was confined to one barn. There were six barns on the place. They went there on Wednesday and thought they would salvage a lot of those cattle. They ordered the freight cars out there. On Saturday all but 60 cattle had the disease, and in the meantime the killing house to which they expected to send the cattle refused to take them. They said that they would not risk their business for the sake of a few cattle, because we have sensational papers in the country who would say "You are distributing foot-and-mouth disease." I came out here last March in regard to moving these cattle, and we stayed here all day and made propositions, and every one had a hole big enough to drive a team through, and we could not arrive at any conclusion except that we would do the best we could.

I do not believe we have any other conclusion except to get your disease underground. If you have a few seed animals to go underground, put them under. Some of you, and especially the dairymen, do not realize what it means to the rest of us to have our markets tied up—and we have tremendous dairy interests depending on shipping cattle in through stockyards. They are simply tied up. They can do nothing. Who is going to pay for the cattle lost in transit? You get your stockyards infected. The animals get away, then what happens?

In Pittsburgh we had a carload of hogs inspected in the morning by Federal inspectors, in the afternoon by State veterinarians; foot-and-mouth disease. They were allowed to go to Norristown, Pa. Seventeen hours after they got to the slaughterhouse the feet were dropping off some of them. Who paid for these hogs? What did quarantine amount to in that case?

A friend of mine bought a carload of cattle in Pittsburgh. They came from free territory. There had never been foot-and-mouth disease in that county. He bought these cattle, shipped them out to a slaughterhouse. His own veterinarian reported that the cattle had high fever. They were infected with foot-and-mouth disease.

Let us get our stockyards free, and keep them free, and all our channels of trade. It is all right to talk about keeping one herd

alive, but do not let us affect the channels of trade. It was not the State veterinarian of Pennsylvania that stopped the cattle going through Pennsylvania. It was the people that got up on their hind legs and told the State veterinarian what to do. Infected material was going through and dropping off the cars, and animals were crossing the tracks and picking it up. If you go where they have had this experience you will find the men most careful.

Let us keep our markets and freight cars clean. What will a few seed animals mean compared with the vast interests in the market? Let us pay these men who have these seed animals. Let us put the animals underground and keep our markets clean.

Mr. WILSON. This disposing of the animals that are well or presumed to be well, in the infected territory, is one of the most serious propositions to the farmers and veterinarians. I think that some of the gentlemen who have been talking here have had very little experience as to the shipping of animals from an infected locality. I had the misfortune to have 86 cattle and 81 hogs put in the ditch on the 21st of last February. Prior to this time, in December, the first case of foot-and-mouth disease in our locality occurred something like this: A gentleman by the name of Charles Howe was to have a sale on a certain Wednesday. My son and I were to clerk the sale and settle for it. On Saturday night I called him up and said: "I think you had better postpone your sale. The foot-and-mouth disease is over in Carroll County and in Whiteside County, and you are assuming some risk, and it is very doubtful if you can sell your stock for what they are worth." He came to the same conclusion. On Wednesday, the day the sale was to have been held, these cattle were perfectly healthy. Every steer in the herd was on his feet and healthy on Wednesday afternoon. Thursday morning one steer was a little stiff. He called one of the local veterinarians, who said the case looked a little suspicious—and he had a pronounced case of foot-and-mouth disease on his farm. The day of that proposed sale the cattle were perfectly healthy, and you and I and anybody else that had been there would have bought. There was no disease within 8 miles of the place at that time. The cattle were killed, and we supposed that ended the disease in that locality.

About six weeks from that time, at the farm upon which my son lives, over 3 miles from this place, on Saturday morning when he went to the barn—he had a bunch of 74 steers—he found one steer a little stiff, and turned him out in an adjoining lot, and immediately telephoned to Dr. Murphy, the Government veterinarian, who was at Polo. He came down and looked it over. He said, "I think there is trouble here, but we won't destroy till Monday." Monday I went down there with the doctor, and there were 15 calves that there was no question about. Their feet were sore; their mouths and tongues sore; and they were drooling at the mouth. Tuesday my son called me up and said there were 50 of the cattle affected. By the next Sunday every one of the 74 were affected.

In that same locality, in the township of Buffalo, there was not a case of foot-and-mouth disease during the winter, and there were a great many cattle and hogs overfat and ready to be shipped, and there was considerable anxiety among farmers who wanted to get rid of these cattle and hogs. A good many of these ought to have gone to market at a profit when they were at 300 pounds. It was

impossible to ship them. It seemed strange to a great many of us that the Government authorities would not let us ship them, although we were 7 miles from where they were affected. After we had everything cleaned up William Acker's cattle came down, and this was the one instance where it affected the adjoining farms.

So I say, Mr. Chairman, it is a very difficult problem. Had Charles Howe held his sale on Wednesday, and this man bought one cow and that man a couple of heifers, that would have spread the disease all over this country. Had William Acker been allowed to ship cattle out before infection was discovered on his place, they would have had the infection in Chicago. We ought to be patient. We farmers ought to be willing to have these cattle on our hands a little longer, although it is a loss to us, if we, by so doing, can assist in eradicating this disease, which, if allowed to remain in this country, will ruin the stock industry and nearly every man interested in it in America. [Applause.]

Mr. T. WILLIAMS. I should like to ask the gentleman from Pennsylvania two questions, merely to set right certain things in regard to the State of Illinois. The first question is as to your knowledge, or the knowledge of anyone else in this room, of there ever having been a case of foot-and-mouth disease that came from live stock shipped from any farm in Illinois without first passing through the stockyards. In other words, has any case of foot-and-mouth disease been transferred to any other State by direct shipment from the farms in Illinois?

Mr. BAYARD. I can't answer that question because I don't know. We had it cleaned up once, and then we had new outbreaks all around, and we traced it to the stockyards and to stock from other markets. I don't know of any case being shipped from any farm in Illinois, because I don't think any farm in Illinois could get cattle into our State. They were only allowed to come in for immediate slaughter. I think the stock that came in was from Louisville, Cincinnati, or some other place, and then only for immediate slaughter.

Mr. T. WILLIAMS. There was a time, wasn't there, afterwards, when stock from Illinois was allowed to go into some other States? I don't know whether it was Pennsylvania or not.

Mr. BAYARD. There have been a good many changes in our quarantine, and I will say that Dr. Marshall in this last quarantine was disposed to be more liberal than the Pennsylvania people would allow him to be.

Mr. T. WILLIAMS. The other question is this: There have been quarantined in Illinois—one by consent and the other by injunction—two different herds of cattle, the dairy herd and the Crabtree herd. Has there ever been, in Illinois or any other State, a case of infection arising from either one of those herds?

Mr. BAYARD. I don't know anything about it. I know that—that we are very much afraid of any territory that allows this disease to remain above ground, and our people will not stand for stock coming from localities where that disease is allowed to be above ground. [Applause.] You can't keep your diseased animals above ground and expect your stock to come into Pennsylvania.

Mr. T. WILLIAMS. I was simply trying to correct in the minds of these people here from different States a little of the misinformation,

if you please, that has gone out about the State of Illinois. The point I wanted to make is this: Every bit of the disease, as far as I am aware, that has come into the State of Illinois came first into the stockyards and did not originate in the State of Illinois. Secondly, that any stock shipments that have taken place from Illinois—and there have been some—have never infected any cattle in any other State. Any infection that ever came from Illinois came from the stockyards, and it is hardly fair to charge the farmers of Illinois with the Union Stockyards, which is the general market for all of us. We don't want to be treated as though every farm in the State backed right up against the stockyards, because they don't.

Mr. VAN PELT. It is my understanding that a herd of pure-bred Ayrshire cattle was shown here in Chicago by a breeder. I would like to ask the gentleman if those cattle went back to Pennsylvania?

Mr. BAYARD. They did. The Federal department declared those animals free. We didn't want to receive them.

Mr. VAN PELT. How do you reconcile that with your argument that you wouldn't tolerate shipments into Pennsylvania as long as a herd was kept above ground?

Mr. BAYARD. Our veterinarian decided that he wouldn't go around the Federal veterinary authorities. He wanted to work in harmony with them. The sentiment in Pennsylvania was averse to bringing those cattle back.

Mr. VAN PELT. I would ask the gentleman from Pennsylvania, now that those cattle are still above ground, even though the people of Pennsylvania objected to their going back to the State of Pennsylvania, has any infection arisen from that herd or broken out in the herd since?

Mr. BAYARD. I don't think so, but I do not know. That was an exceptional case. The sentiment of the people of Pennsylvania is against it. As long as you keep infected cattle above ground we don't want to do business with you.

Mr. VAN PELT. Don't you expect people of other States will treat you the same?

Mr. BAYARD. I hope they do. If we are foolish enough to keep diseased cattle above ground, the only way to bring us to our senses is to shut us up, and then we will come to our senses, and put them where they belong.

Mr. BENT. Mr. Chairman, if the cattle are diseased and not safe to have around, I agree with the gentleman. If they are entirely recovered and are safe, I think that it is rank foolishness to talk about the impression of people and how they feel when it is mere superstition. There was a time in the East—I am not sure whether it was Pennsylvania—when they burned witches. They don't do that to-day. We have heard some very appalling figures and facts quoted to-day. Col. French has made some reference to them, but it seems to me that the most appalling statement that we have listened to is the statement that was made by the Solicitor this morning when he said that it would take 24 hours to effect a quarantine. Take the stockyards at Chicago with the enormous business that they are doing every day, sending cattle broadcast over the entire land. If there is anything in stopping that traffic when there is infection in those yards, then there is every need for cutting out all of the local red

tape and having just about as much delay in effecting that quarantine as in the answer of a good fire department to a fire call. It seems to me that the only way it could be accomplished is to make it a severely punishable offense for any one knowingly to allow the disease to get away after it has once become discovered. That would automatically effect what we desire.

Mr. VROOMAN. The Federal department is very anxious to have the laws perfected, and we are very glad to get the cooperation of the stockmen and the business interests of the country in that great work.

PROBABLE ORIGIN OF THE OUTBREAK.

Mr. TOMLINSON. Mr. Chairman and gentlemen, I have listened very carefully to-day to the very interesting remarks both in the papers and the short talks of those present. I had supposed before I came to Chicago that there would be some expression among veterinarians and stockmen as to their belief of the cause of this foot-and-mouth disease. So far as I have been able to gather from the paper of Dr. Moore, we are still groping for light and are quite in the dark as to the cause. I can not point to any cause any more than you can, but I wish to refer to some things which seem to me to be significant. Our greatest imports of meats into this country came during last year, the year of the outbreak of foot-and-mouth disease. From what I gathered from the many statements made about the previous outbreaks, some of them have been traced to tanneries. I think there is some significance to these facts, and I ask for the veterinarian to say if there is any danger in the handling of imported hides in cars. This is a question which should receive more careful consideration, and upon which we should have the views of the veterinarians. So far, we have not heard anything. I opine that there is some danger from that source of infection.

Mr. Chairman, I indorse the admirable sentiments that you expressed this morning as to the growth of the live-stock industry of this country, but when you recall that in this last recent outbreak millions were lost by those not directly affected, it is small encouragement for a man to continue in the business. This country has for many years raised a vast surplus for export. It can do that to-day. We have not reached the capacity for the production of live-stock in the United States, and I believe it is a hazardous policy to run the danger of bringing in some hides not really needed, possibly to contaminate our herds and to have an annual loss of twenty-five to fifty million dollars—and I do not believe that covers more than the actual losses incurred, directly and indirectly, during this last campaign. The stockmen are serious about this, and we do not want to build up an immense structure composed of veterinarians to tell us how to do our business. We want this disease wiped out. We want some steps taken, if it be possible, to prevent recurrence of this disease. It is my pleasure and duty to attend important stock meetings, and I am personally acquainted with the stockmen throughout the country; and they very generally complain of the domination by these veterinarians of their business. I thought that this assembly should devote some time to the discussion of some of the causes of this disease. Once more I express my regret that the suggestions coming from the

producers have received so little consideration. These men have lost a vast amount, vastly more than a few of your breeding people. Their losses can be counted in cents where ours measure up in dollars. We support the Bureau of Animal Industry; we support the various State boards in trying to wipe out and control this disease; but we differ widely from those who are not willing to seek and ferret out every possible source of origin, and I believe this comes from animal products from countries where this disease exists. They tell us Canada receives few imports. That may explain why Canada has little foot-and-mouth disease. I would not ask you to pass a resolution. Congress will take action on this thing. I notice in the evening paper that the Senate is discussing the keeping of Illinois free of foot-and-mouth disease. All other operations of government were crippled because of the money expended for foot-and-mouth disease. These legislatures are not going to pass appropriations perpetually for foot-and-mouth disease, and Congress is going to investigate carefully the expense incurred in this, and I believe there will be great difficulty in raising further appropriations. Our association did everything it could to secure an appropriation to take care of the disease. We do not want to build up a perpetual system of veterinarians to take care of foot-and-mouth disease. We want to stop it if we can.

Mr. VROOMAN. I want to ask Dr. Melvin about some of the facts connected with the former outbreaks. As I recall it, one or two of the former outbreaks were traceable to imported vaccine from Japan. Is that not the case, Doctor?

Dr. MELVIN. The earlier outbreaks prior to 1884 were nearly all due to imported live stock. After the establishment of the quarantine of cattle there were no more such importations of disease. The outbreak of 1902 and 1903 was not definitely solved at that time. There were some experiments made at that time, testing some of the smallpox vaccine virus, but the disease was not sufficiently developed in these experiment animals to diagnose it as foot-and-mouth disease. The outbreak of 1908 was definitely determined to be due to contaminated smallpox vaccine virus, and this led us to the conclusion that, undoubtedly, the previous outbreak was due to the same source. In the present outbreak we have had men skilled in detective work looking into all possible causes. We have investigated all of the possible sources of the introduction of the disease that we could think of, including meat, and we have not been able to determine definitely any particular thing that brought the disease into the country. I think it must have undoubtedly been brought into the country, for the reason that so great a time had elapsed that the the disease would have died out of its own accord, even if not completely eradicated in 1908. Some imported merchandise was received on the farm where the first case that we knew of in Michigan was found. There was nothing definite to it, although it seems rather probable that the infection did come in with that merchandise.

Mr. VROOMAN. What was the nature of that merchandise?

Dr. MELVIN. They were gloves from Germany. The wrapping was thrown into the hog lots.

The importation of hides and skins is under the jurisdiction of the Treasury Department. The Department of Agriculture advises the

Treasury Department as well as it can as to what methods should be pursued as to the importation of these articles. The disease we are most concerned about, because of the great resistance of the pores of the bacteria, is anthrax. Consuls are now directed to certify that the hides are from districts which are believed to be free from disease, and if not so certified, disinfection is required. In the case of certain countries where cattle are killed under the inspection of official veterinarians of those countries we allow the importation of hides under certificates that they have been removed in slaughter-houses under inspection and have no disease. It seems a very safe procedure, and I do not believe it is possible for foot-and-mouth disease to come in under these conditions. The fact that meat is coming from certain countries that have the disease I think does not alone justify the exclusion of these products. In our extreme desire to provide against the introduction of this animal disease through the clothing of immigrants, who may arrive in clothing which they had used on farms abroad, we asked the Public Health Service whether they could undertake to provide for the disinfection of this wearing apparel. They were unwilling to take it up unless we produced some evidence that infection was brought in in that way. That we were unable to do. There are so many ways—so much merchandise of different kinds that might bring it in—that to block effectively all these avenues we should have to include all merchandise from all countries.

Senator WHITE. How many outbreaks have there been since you were connected with the department?

Dr. MELVIN. Two.

Mr. VROOMAN. The department has given serious consideration to this. We have gone over all the data in our possession repeatedly with a view to ascertaining from what source the various outbreaks that have appeared in this country have come. The brief résumé which Dr. Melvin has made, and which he is better capable of making than I am, brings to your attention the facts that have been brought to our attention, and very briefly they are these: We know the disease to have been imported into this country, once certainly and probably twice from infected vaccine. This was not brought in in the shape of hides or beef or meat to be eaten, but in the shape of vaccine. We know of no instance in which the disease has been imported into this country in hides or in the shape of meat to be sold to the public, but it can be brought in in that way just as it might be brought in on the clothes of immigrants or in the wrappings of merchandise. But the department has not thought it wise to place an embargo on all products from countries where foot-and-mouth disease exists because there was a possible chance that it might be introduced into this country by any one of a dozen imported articles. But we always desire to get new leads, and any time anyone has any additional evidence to give us, we shall be glad to have it.

PAYMENT FOR LOSSES IN ILLINOIS.

Mr. SWIFT. Our cattle have been killed in Illinois, and the Federal Government have paid us their part of our loss. I know that the veterinarian of the State is strongly of the opinion that the Federal Government should pay all this loss, and from the way the Federal

Government pays, I agree with him. They are good payers. Our State legislature appropriated \$200,000 to pay the losses of foot-and-mouth disease in this State. The losses were to exceed \$400,000. Our governor vetoed—tried to veto in part—and cut that down to \$100,000. We are here discussing everything but just how we can get our legislators to pay us our losses. What are we going to do when our veterinarians tells us how to quarantine to stop the disease, and not many of our politicians are here to tell how they are going to pay for it?

A MEMBER. What was the appropriation of the last regular session of the legislature?

Mr. SWIFT. It was \$1,500,000. That paid for the losses in the first outbreak, but there was an emergency appropriation of \$200,000 that was vetoed. The veto must stand, so the State has no money to pay its half of our losses now. We have on our statute books a law stating what maximum values will be paid for the animals that are killed, and I think the State some time will have to pay; but our State is a poor paymaster, even if it is Illinois, and our governor allowed the salary grab to stand. He didn't veto that.

Mr. VROOMAN. In justice to Illinois I want to state that there are two States in the Union that have not paid anything, and Illinois has paid \$1,500,000 already.

Mr. EMBRY. I shipped 700 hogs from our market to a packer in another market. The hogs were inspected. There didn't seem to be anything the matter with them. They went to the packing house, and the next morning we were notified that they were affected by some disease. We telegraphed backward and forward, and finally got permission to kill them in order to save the salvage money. One hundred and eighty-three out of 700 were rejected for different causes, a great many of them for foot-and-mouth disease, and the Government refused to pay us for the 183 hogs which they would have paid us for had they been killed and buried. Shipments were stopped en route to some of the packers and killed, and the Government paid them, but refused to pay us for our hogs that were killed at this point, because they had reached their destination and were inspected and killed at the slaughterhouse. Was there not as much justice in this as in the other case?

Mr. VROOMAN. There was some difficulty, probably some legal difficulty, involved.

Dr. DYSON. For the information of Mr. Swift, I want to explain. The \$200,000 appropriation was made on the 29th of June, quite a while after we thought we were out of the woods. We had our last outbreak on May 8 or 10. I think all the appropriations were made by the State legislature, paying all balances up to the last day of June. We did not anticipate another outbreak of foot-and-mouth disease, but an emergency appropriation of \$200,000 was passed. They had appropriated \$1,500,000 to pay for the first outbreak. The governor conferred with myself and the board of live-stock commissioners and asked how much we thought we could get along with, to clean up all of the indebtedness of the State. He did not want to run the appropriation any higher than was necessary. We all agreed \$100,000 would be more than enough to cancel the outstanding indebtedness and leave a surplus of \$50,000. The governor proceeded

to cut it in two. Since then the entire fund has been tied up by injunction proceedings. It has been released within the last two or three days, I believe.

Mr. WILSON. I do not like to have my friend Swift making the insinuation here before our friends from the United States that Illinois will not pay its debts. Illinois always has paid its debts. When my cattle went into the ditch on the 21st of February there was not a dollar in the State treasury to pay for it, but the governor of the State saw the situation and sent a message to the legislature asking them for an emergency appropriation so that the farmers would be paid. The State of which I am proud to be a citizen always pays its debts and always will.

A MEMBER. You have not heard anything from Indiana. The State of Indiana has a live-stock breeders' association, a cattle feeders' association, a State veterinarian, and all the necessary machinery found in the States. I think a good thing is shown in the last speaker's attitude. If we could get that spirit in every State in the Union, there would not be any necessity for a conference like this. Foot-and-mouth disease was cleared up in Indiana by a co-operation between the State veterinarian, the people of the State, and the Bureau of Animal Industry. If we can get the farmer to appreciate the danger of the disease—not only foot-and-mouth disease but other diseases—and have the right attitude about cleaning up the situation, we can do away with the misunderstanding which has been displayed. The whole trouble comes from a lot of misunderstanding, and I think that if any good things come out of this conference, one will be the correction of a lot of misunderstanding. By cooperation we can accomplish everything that we need to in regard to this situation. It can not be done by the Bureau of Animal Industry alone, by State institutions alone, or by farmers alone, but all must cooperate.

SPREAD OF FOOT-AND-MOUTH DISEASE BY CONTAMINATED ANTI-HOG-CHOLERA SERUM.

Mr. ADKINS. I would like to ask Dr. Melvin a question or two. There are a good many questions that come up among the live-stock men with regard to the various causes of this foot-and-mouth disease. In the event of imported meat, we will say from some infected country with foot-and-mouth disease, being shipped into a little country town, and some fellow comes in and buys a nickel's worth of dog meat, and the dog carries the bone to some place, and the cow becomes infected with foot-and-mouth disease, wouldn't it be possible for that dog to carry it into the pasture and nobody know where it came from? Would that be possible in your opinion? A second question: As our State veterinarian has already stated, when the first outbreak of foot-and-mouth disease in Illinois was supposed to be eradicated, and the Government had adjudicated its half of the expense, the committee in charge of that appropriation in the legislature took the copies of the vouchers that had been issued by the Government to the owners of the stock destroyed, and an appropriation was made sufficient to pay that loss, and an emergency appropriation of \$200,000 made to take care of future outbreaks. It has been a mystery, and there has been a good deal of talk, and charges

and countercharges have been made, as to how these second outbreaks came about, and it is currently talked around on street corners that the Government passed serum that had been manufactured before, during the time of this first outbreak, and allowed it to be distributed out among the farmers to vaccinate their hogs, when that started this last outbreak. You certainly are in a position to answer that question and clear up that proposition in Illinois. There has been quite a good deal of talk about that, as to why and how that serum came to be released and sent out among the people. If that question is satisfactorily answered, I think it would relieve the minds of a good many men. I happen to be in a position to hear the complaint made that if that serum hadn't been passed and allowed to work out by the authorities, we probably wouldn't have had this second outbreak. I would like to know what you know about it.

Dr. MELVIN. The gentleman's first question somewhat reminds me of the story of the old maid who was sitting by the well crying. She was asked what she was crying about. She said she was thinking how sad she would feel if she should be married and she should have a child and it should fall in the well and drown. But, seriously, I don't know that I could answer his question. I think an answer to the second question will perhaps answer the first.

In the first place, both Argentina and Uruguay, from which meats are shipped to the United States, have very good national inspection of their meats. Their system is somewhat different from ours in this country. Cattle are not shipped in to-day and slaughtered to-morrow. Generally the cattle are shipped directly from the ranches to the slaughtering plants, and they are usually held several days. Most of these plants are by themselves and occupy land varying from 500 to 2,000 acres. These animals are inspected alive by competent veterinarians, and they are also inspected at time of slaughter. So that reduces to a minimum the danger of infected animals being slaughtered and shipped. Now as to whether the infection would live during all this transportation of the meat during its time in the meat market, and during the time the dog was carrying it around on the farm, I am not in a position to state, and I will tell you why.

This serum that produced this last outbreak was made from blood drawn from hogs the latter part of October, 1914, at establishment B, before we knew the infection was in the stockyards. When the stockyards were found infected, this serum and all other serum produced in Chicago was not sold; it was held. A few days later the disease was found to have existed on the premises of establishment A, which was manufacturing hog-cholera serum, but in this case only the virus was found infected. All the product on both places was put under lock and key until we could find time to determine what to do with it. These are both outside of the stockyards and widely removed; they are not contiguous to each other at all. The serum at the first establishment, A, decomposed, became putrid and was disposed of in that account. As to the second plant, B, we had no information whatever that there was any infection on the premises at any time. The owners of this serum insisted and kept insisting that we should determine whether it was infectious or not, and if it was not infectious that they should be permitted to sell it. Without any evidence

whatever that there was infection on the premises, or that the serum was infected, we proceeded to make a test of the serum on hogs. Eight hogs received injections of the serum, and two were used as checks. The serum was tested for two purposes; first, to determine whether it was free of foot-and-mouth disease; and second, to determine whether it was potent in preventing hog cholera. These animals showed no indications whatever of foot-and-mouth disease. The serum proved potent in preventing hog cholera, as the eight inoculated hogs remained well and the two check hogs died. We had no authority whatever under law to prevent that man from shipping that serum. We have no power of confiscation of serum. The law provides that worthless or contaminated serum may not be shipped in interstate commerce, and we had no evidence on which to base an opinion that it was worthless or that it was contaminated. Unfortunately, it proved afterwards to be contaminated.

All the animals on the premises where this serum was used did not become infected at once. In some cases where there were 100 or more hogs, there were only two or three that became infected, but the infection spread from them to the others and from them to the cattle, showing that the infection in the serum was of a very mild type. The circumstantial evidence pointed directly to the serum. We got further specimens of this serum of the same lot and tested it in Washington, with negative results. We got another lot and tested that with negative results. I got the Public Health Service to make a test of a fourth lot, and it also was negative. We then got the fifth lot and tested that, and one animal in the fifth test came down with a very mild type of foot-and-mouth disease. Why that was I don't know. That particular animal may have been supersensitive to this disease, or it may have been that the infection in the serum clumped, as infection does in some serum, and that that particular animal got more infection than the others did. In all the animals that we tested the sixty-second one developed the disease and the rest all remained healthy. The original eight hogs that were tested remained healthy and were put in with a drove of other hogs, and they remained healthy.

After the development of the disease in the field a veterinarian who had been employed by this concern came out with the statement that he knew of foot-and-mouth disease being on those premises. We had his story investigated by the Department of Justice at Washington. They made all the inquiries as carefully and as fully as they could, and they failed to produce any evidence outside of this man's statement that there was any knowledge on the part of anyone that there was foot-and-mouth disease on those premises where the serum was made. It also seems improbable to me that the owner of this place had any knowledge of these facts, because as a simple business proposition he would have known at once that he would be put out of business entirely by sending out infected serum. The department issued a very complete statement on this serum, and this was sent out quite generally to the press, especially the agricultural press.

MR. ADKINS. What was the idea of holding the serum up?

DR. MELVIN. Because there was foot-and-mouth disease all over the country. As a matter of fact, every man connected with the work of eradicating disease was working from early in the morning

until late at night and every Sunday trying to get the disease in the field in hand. We did not have the time nor the men to make any investigations as to this serum, and it was considered wise to wait until we could find time to make these more careful inquiries and test the serum.

Mr. BENT. Doctor, was there any indication at all or anything else to show that there had been any diseased hogs found in that serum plant prior to this time?

Dr. MELVIN. No, sir; there was no evidence whatever. I think I made the statement that there wasn't any infection at any time on the premises; and no one made any such statement until after the disease developed in the field.

A MEMBER. May I ask Dr. Melvin, please, in that connection, is it possible that the disease came to that sixty-second animal in any way other than the serum? Here were 61 other animals that gave no indication of the disease whatever, and the hogs which had been injected were put with other animals, and none of them developed the disease. Is it possible or not possible that this sixty-second animal received its infection from some source other than the serum?

Dr. MELVIN. I don't think so. I don't think there is any question but what it came from the serum, because these test animals were purchased in a part of Virginia where there had never been any disease. There is no disease in any part of Virginia now, and the premises on which the injection was made had never been occupied previously by any infected animals.

Mr. MUNN. How many animals responded to that serum finally with the disease? There were some up in Minnesota.

Dr. MELVIN. I don't know the number of animals. There were 11 premises where this serum was used. There was one herd infected in Minnesota that was slaughtered and buried, and there was no spread from it. There was one herd in Michigan that was treated, and this herd was killed and buried without the disease having appeared. There were two herds in Illinois that were slaughtered and buried without the disease having appeared, and there was also no spread from any of the last three herds that had been treated with this serum.

A MEMBER. I would like to ask if there are any means contemplated or in operation by your department to keep a check on these serum manufacturers to see that they make their serum from healthy animals.

Dr. MELVIN. We undertake to do that now, and to test the serums. We are undertaking some experiments now, and have had them in progress for some time, with a view to treating this serum so as to kill any foot-and-mouth virus with which it might be contaminated, but not to impair its potency in preventing hog cholera.

Mr. VROOMAN. I would like to state, as I stated this morning, that the Federal department is working on this problem and is hoping that there will be a strengthening of the law by Congress during this coming session. The law is not satisfactory at the present time. We have neither the authority nor the appropriations to enable us to inspect the serum and enable us to see that only animals coming from areas where there has been no infection are used. We have no present powers over the animals, and our power over the

tests is very unsatisfactory, and the Secretary is going to have something to say on this matter soon.

Mr. ADKINS. The serum has come to be very generally used throughout the State here. Last fall a great many men held off and suffered losses by cholera, because they were afraid of foot-and-mouth disease. This matter of clearing that up and allowing them to get hold of the serum is important, and I think your department should have authority.

Mr. VROOMAN. We hope to get that authority.

Dr. DYSON. Dr. Melvin called attention to the defect in the serum law. There are serum plants that simply destroy that product which does not come up to your standard. Some days ago I received notice from one of your inspectors that a certain lot in the State of Illinois did not come up to the bureau standard of potency. We stood in the same identical situation. We did not have the right to confiscate serum which does not come up to your standard of potency. There is nothing that restrains that firm from selling that serum to hog breeders in the State of Illinois. Suppose a man should buy that serum and use it in connection with a virulent virus. That would mean the spread of cholera and the loss of all his hogs. I should like to know whether Dr. Melvin will insist upon the destruction of this lot of serum or the revocation of the license under which the plant is operating.

Dr. MELVIN. The Federal law, of course, as I have stated and Dr. Dyson has stated, does not give us the right of confiscation. We might perhaps have the stuff appraised and pay for it and destroy it, which I do not think that the Government or any other authority ought to be required to do in the case of the product which is impotent. It would be against the Federal law to ship that serum in interstate commerce. If the manufacturer was under Federal supervision and shipped that in intrastate trade, or within the State of Illinois, we could cite him to a hearing as to why his Federal license should not be revoked. It is altogether probable that if a man did make such a shipment of serum which was known to be impotent within the State, in the face of information that it was worthless, he would be cited to such a hearing; and if the case was proved against him, that his Federal license would be revoked. That would be as far as we could possibly go, and I am not so certain that the license could be revoked.

Mr. ADKINS. That would simply prohibit him from making interstate shipments?

Dr. MELVIN. Yes; or the man could get around the Federal law by asking for the revocation of his Federal license and then shipping it within the State.

Mr. ADKINS. All serum plants doing interstate business you require to maintain a certain standard of potency?

Dr. MELVIN. Yes.

Mr. ADKINS. That is the same standard maintained by the State here?

Dr. MELVIN. Yes. I suppose, in a practical way, if we found serum impotent and the State was informed it would take action.

Dr. DYSON. We have no law in the State of Illinois which prevents the sale or use of that kind of product. It is just a question of how far you can go to protect the State from products made under

the supervision of the bureau, and whether or not you could not withdraw the license forthwith if the serum did not come up to the standard of potency.

Mr. ADKINS. I find our veterinarians in this State are somewhat solving that problem on their own hook. They recommend to the buyer a serum manufacturer making a good serum. There are only two doing any business in my county, so that the matter of potency and the matter of sending out good serum is being recognized by the veterinarians.

Mr. VROOMAN. It is now past 11 o'clock. That is a little past the usual retiring hour for us farmers. I suppose you city people may want to stay a little later.

The meeting adjourned to 9.30 the following morning.

MORNING SESSION, TUESDAY, NOVEMBER 30, 1915.

Mr. VROOMAN. We are very fortunate this morning in having with us a male quartet from Des Moines, who have consented to open our meeting with some songs.

The quartet rendered "The Jolly Blacksmith" and "Iowa."

Mr. VROOMAN. The first paper on the program will be by Mr. A. F. Stryker, secretary of the South Omaha Live Stock Exchange. The topic is "The economic importance to stockyards of the eradication of foot-and-mouth disease."

THE ECONOMIC IMPORTANCE TO STOCKYARDS OF THE ERADICATION OF FOOT-AND-MOUTH DISEASE.

By A. F. STRYKER,

Secretary, South Omaha Live Stock Exchange.

My time might be taken up in a discussion of generalities, but the one thought which flashes through the mind of all when this subject is mentioned is so obvious that at least one feature of the question can be dismissed with very brief mention. With your permission, Mr. Chairman, I shall transpose one of the words of my subject, change others a trifle, and speak for but a few minutes on "The economic disadvantages to our stockyards of the noneradication of foot-and-mouth disease."

If it shall ever be determined that we can not eradicate this dread disease from our country, the death knell of the public markets will be sounded and the echo of their swan song will be heard. Public stock markets can not exist in a country where foot-and-mouth disease is generally prevalent. As an illustration of this, look at Europe with her millions of people, foot-and-mouth disease generally prevalent, and not a public market of any consequence.

Let us turn now, if you please, to the brighter picture of this country freed from foot-and-mouth disease, and sum up in a few sentences the conditions which will then surround our public markets.

The raiser of pure-bred live stock will be encouraged to keep up his supply, that a constantly increasing demand for breeding stock may be satisfied.

The range men, both cattle and sheep, will restock their ranges, secure in a public market for all they produce.

The transportation organizations of the country will prepare to increase their facilities, and will not be hampered by a multiplicity of semiconflicting quarantine or sanitary regulations.

The management of our public stockyards will be encouraged to branch out, build more and permanent improvements, and fit themselves in every possible way to handle in the best possible manner the live stock intrusted to their care. The maintenance of free and closed areas in our public yards will be unnecessary. Enormous cleaning and disinfecting charges will be eliminated.

Bankers and commission men will feel secure in financing feeding and breeding operations of all kinds.

Packers will continue to improve their facilities, enlarge their plants, and broaden their buying power.

The feeder will again take heart and will be able to fill his feed lots without the constant dread of an appraisal committee, a trench, and a firing squad.

Feeding stock of all kinds will move unhampered from our public markets to one part of the country or another without the danger of being confronted with closed, restricted, or modified areas.

It will not be necessary for one market to quarantine against stock from another, thus depriving live stock of that free and unlimited buying competition it should have.

The country buyer can pursue his usual vocation without the danger of his purchase being tied up for an indefinite period on expense.

One need not be an optimist to see the numberless advantages of a country free from foot-and-mouth disease. The veriest pessimist could not screw up his courage to advance a contrary view.

We at the public markets can see nothing but woe in my first picture. We are sure that cloud has not a silver lining. Prosperity for our patrons and ourselves shows plainly in the latter picture.

Our country must be freed from the clutches of this disease. I feel sure I voice the sentiments of every stockyard man, of every commission man and trader, of every railroad man whose lines serve any of the public markets, of every shipper to these markets, when I say we pledge ourselves to support to the last ditch the representatives of the Department of Agriculture of both our Nation and our several States in their efforts to give us once more a clean country. We decry petty politics. We wish to uphold the hand of every man who will work with every other man in the eradication of this disease. [Applause.]

MR. VROOMAN. Does anyone care to discuss the paper which has just been read?

MR. KNOLLIN. It seems to me that there should be a little discussion of Mr. Stryker's paper. It is to the point. As a man who has had a very large experience in the marketing of stock, I want to emphasize what Mr. Stryker said in reference to the open market, the large market for our live stock. It seems to me that to take that away from us would be taking the foundation away from the live-stock business of this country. My father was in the business ahead of me. I have grown up in it. I remember well when he went out through Illinois, picking up live stock and driving them into St. Louis, not having an open market for them. The market system of the United States is the greatest in the world. The distributing system for that

live stock is wonderful, and the most wonderful part of it all, it seems to me, is the brief time in which it has been developed. This has all come about during my lifetime, and in my judgment it is a matter of great importance not only to the stockyards companies but to the railroads in their immense investment of equipment, and to the packers and also to the consumers. I very heartily indorse the paper just read.

Mr. VROOMAN. Is there any further discussion of the paper just read? If not, we will proceed to the next paper. Mr. Bryan tells a story on himself, that when he was a young man he made a very vigorous and bitter campaign against a certain politician, and to his chagrin he found himself put on the program at a meeting where this man was to preside. He did not know but that this man might attempt to snub him. He thought the man was lying awake nights plotting to get back at him. The speaker introduced various people, and then turned to Mr. Bryan and said to him, "Do you speak or do you sing?" The next speaker does both. We have already heard him sing, and his delightful quartet with him. It is now our pleasure to call on Dr. Gibson, State veterinarian of Iowa, to speak on the question "What are the advantages and what the objections to making States and counties the units of quarantine when dealing with large areas, and what should be the radius of quarantine when dealing with individual premises under usual conditions which obtain in an outbreak of foot-and-mouth disease." [Applause.]

QUARANTINE ZONES OR UNITS.

By Dr. J. I. GIBSON,
State Veterinarian of Iowa.

Mr. CHAIRMAN AND GENTLEMEN: The subject assigned me is a very important one, as all who have been engaged in the control of foot-and-mouth disease know full well that quarantine units, zones, and radii have been the subject of considerable controversy. I hope it will not be expected of me to suggest quarantines that will prove satisfactory to all parties concerned, especially those who are placed in quarantine. I have never yet been either praised or complimented upon the placing of the quarantine by those most interested and most affected by the quarantine, nor by those protected. Thunderbolts would be mild shocks to a quarantine officer, compared with the shock he would experience at receiving kind words, compliments, or congratulations.

Before offering my suggestions relative to the areas that should be quarantined in order to control foot-and-mouth disease, I want to say a few words about cooperative quarantine.

This country is called the United States of America; I am wondering if the country as a whole is really true to its name? Are we united, as States, under the national sanitary authorities of the Bureau of Animal Industry, United States Department of Agriculture? I hope we are, as I believe we must be if we are to achieve the greatest success in combating foot-and-mouth disease, which we believe is the most serious and the most difficult disease of live stock that we are called upon to control and eradicate.

In order to combat successfully a widely spread outbreak of foot-and-mouth disease, and in order to place our quarantine lines for the safety of the live-stock industry of this country, we must have a competent sanitary surveyor to indicate just where the quarantine lines should be drawn. The question next in order is as to who shall make this survey. My answer is, our national live-stock sanitarian, the Chief of the Bureau of Animal Industry, United States Department of Agriculture.

When this quarantine line is drawn upon a State line, the United States Department of Agriculture should rigidly enforce the quarantine. When the quarantine lines are drawn so as to include a number of counties in a State, the sanitary authorities of the State so divided should, in my opinion, enforce the quarantine; and the eradication of the disease should be carried on in compliance with the methods, rules, and regulations adopted by the Bureau of Animal Industry, and in this work the State sanitary boards and officers should give their most hearty cooperation in all the details of the field work.

When quarantine lines are established as indicated above there should be no other quarantine placed in effect. All free area outside the quarantine line should be *in fact* free area, and the live-stock business should be carried on in the usual way in all the territory not included in the cooperative quarantine lines. By this I mean that there should be just as thorough cooperation on the part of the bureau officials and State authorities in the free area of the country as there is or should be inside the quarantined area.

Certain States have placed embargoes against other States which were entirely free from foot-and-mouth infection, and have maintained those embargoes for months. This procedure I condemn, because it is entirely wrong. The incentive for the placing of such embargoes seems to be a lack of confidence in the Federal and State authorities who are called upon to control the outbreak in the quarantined area. If we could have perfect cooperation on the part of both Federal and State authorities and of all the people in the quarantined area I believe the sanitary officials of the States outside of the quarantine lines might be led to place implicit confidence in the integrity and ability of those called upon to control the outbreak, and if that confidence in fact existed I do not believe any of these injurious and unnecessary embargoes would be placed.

When foot-and-mouth disease is found to exist in any considerable portion of a State I believe the first move should be to quarantine the entire State until the extent of the outbreak can be determined. The placing of the entire State in quarantine for a short time would prevent a stampede of doubt and fear on the part of adjoining States as well as those more remote from the State infected. As soon as the extent of the outbreak is determined the quarantine lines should be narrowed down to the county or counties infected and should be rigidly enforced on sufficient territory to protect all territory outside the quarantine line from possible infection.

For my part, when a State is in quarantine because of the existence of the infection in portions thereof, I do not believe in any special privileges permitting *intrastate* movements when such movements *interstate* are prohibited.

States, counties, and townships are the most convenient units to be included in a quarantine. The proposition of maintaining strict quarantine upon a 3, 5, or 10 mile quarantine zone is very difficult, because the line is always more or less in doubt, and there is always more or less intentional as well as unintentional violation of such lines. The most difficult part of the quarantine work is maintaining the closed quarantine area surrounding the individual outbreaks. The violation of these individual quarantines, whether through carelessness, ignorance, or malice, delays the work of eradication and tends to keep the disease spreading. In many instances when the disease is found to exist upon a certain farm the infection doubtless has already been carried to other farms immediately adjoining, or even to farms some miles distant, depending upon the movements of the people and their business intercourse. Therefore I deem it impossible and unsafe to attempt to control an outbreak of foot-and-mouth disease in any farming community without taking in a radius as large as a township, at least when the infection is located in the center of said township.

Much of the difficulty encountered in connection with the enforcement of quarantine on the closed area is due to the fact that the people do not understand the nature of the disease, the ease with which it is spread; and further, they look at the business end of it, for the immediate moment, not taking into account the business of the months and years to follow.

A quarantine placed upon a farm infected with foot-and-mouth disease should prohibit all the occupants leaving the premises and should forbid all people to enter upon the premises. The infected live stock should be corralled immediately in the smallest available space, under cover if possible, away from all public highways and line fences, until appraised, slaughtered, and buried at the earliest possible moment. I believe a police officer should be placed upon every infected farm, with rifle and shotgun, and riding horse, if necessary, so that he might prevent all outside carriers, such as dogs, cats, pigeons, crows, buzzards, and rodents from coming upon the infected premises and returning again to uninfected area.

The quarantine upon the surrounding closed zones should close the public schools and prohibit all public gatherings for a period of 30 days. It should prohibit the intermingling of the people with the closed zone.

There has been altogether too much harsh criticism in connection with this outbreak. We should all be united when confronted with the possible invasion of our country by an enemy, and we should be just as solidly united when confronted with an enemy to our farms and our cattle, like foot-and-mouth disease.

DISCUSSION.

Senator WHITE. This is perhaps a good time to go into the matter of discussing this quarantine business. We had an outbreak in my county. One or two carloads of stock were shipped in from the Chicago stockyards, divided into two bunches, along about the 1st of November. They discovered the cattle had foot-and-mouth disease. One of these bunches was near Williamsburg and the other near

Holbrook, right in the midst of the black-cattle district. We have the best black cattle in the world in this Holbrook district. The men got out there and put a quarantine on this place, and I understand put guards on, and they did not have any trouble. They were not educated men; they were not technical men at all. One case was all they had there. Now, I tell you men, you veterinarians and you uneducated men, that to have a case like this is going to be a great obstacle to cooperation. When these men see a case, and see that case stamped out, and take these precautions to stamp it out, and see that case put under the ground, and no more develops like this case at Williamsburg, it is going to affect cooperation. He was not a breeder; he was a dealer—shipped out cattle. His place was quarantined. Men came there from all over the county. It was a curiosity to many of them. One man told me he went over there, stamped in the manure, got manure on his shoes, and went in his own yard and fed his cattle. Some visitors came right along there all the time, and they got 10 or 12 cases from there. Of course there might be some cases that spread from the first case, for a man, another scalper, drove some of his cattle into the pasture with these cattle before they got the disease. These people always look for causes, even if they are not educated. There were 10 or 12 cases from letting cattle run to streams and the streams carried it down. Notwithstanding the fact that that section was filled with these inspectors all that time—42 days—no one went to that farm to inspect these cattle. These cattle men had to come and tell you themselves. They rode past and might have had to get out of the rig to open the gate to get in. That is your cooperation.

Dr. Gibson spoke also about the quarantine. I think it may be all right to quarantine the State for a short time until the disease is located and it may be all right to quarantine a county until they locate the diseases but after that has been done I think the quarantine ought to be lifted from the county and ought to be put around a radius of 3, 4, 5, 6, 7, or 10 miles, or whatever is necessary. They have no right to make it on the county. Four miles one way and 25 or 30 the other way.

When these cattle were quarantined, and before they were buried, people were allowed to come in day and night to look at them. They slaughtered one bunch on Sunday, and I think they were buried about 10 rods from the public highway. People drove there in automobiles from all over the county and stopped on the road. They were not allowed in. Four or five months afterwards, people 28 and 30 miles away, after they fed their feed out, had to get off their places. Of course Dr. Gibson told the people that they did not have to get out the 1st of March, but I don't know any one that stayed. One wanted to move outside the county. His feed was all gone. He had to do something. He drove his cattle away at night and got them out of the county. Gibson followed him into the next county and quarantined him 30 miles away. These uneducated people can not cooperate with anything like that.

We in Iowa tried to write a law into the statute books and define the distance. We framed up a bill and sent it to Secretary Houston. We had the area 3 miles, and he personally wrote back and suggested that it be made 4. Four was the least in any case they had—

in some places 5. We asked him if it was all right so that your department could work with us. He suggested this change, and we made it. The Federal man was in the house of representatives when the bill passed. I do not think Federal men ought to be put in these places when legislation is going on. It passed the house with practically as large a vote as in the senate. Along toward the last part of the session Gibson kicked on the bill and wanted it recalled, and he got after the governor, who held it up until the last day and then vetoed it. I think it should have been passed. The area if not big enough should be made bigger.

About moving our live stock, there was a lot of fat stock there, and the loss on it was ten times what it was on the other. This was the outbreak that I spoke about that came on about the fortieth day. The farmers got up in arms and had an armed guard put on.

A MEMBER. Have you any foot-and-mouth disease in your locality now?

Senator WHITE. No.

The MEMBER. Is it wiped out entirely?

Senator WHITE. Yes. We put guards on and wiped this case out. Two cases reached there. We had no trouble. What is the use of talking about cooperation when the department will talk about quarantine and won't quarantine? They put quarantines on there that were not quarantines. We want effective quarantines, where no man, woman, or child could pass in or out. This was what we had in the bill. Nobody wants foot-and-mouth disease to get a hold any more than these veterinarians do. The farmers don't want it. But it is going to have an effect on the cooperation of the farmer. The people got rebellious in our county. We had one case in Jackson county, and they held meetings and defied the authorities and went ahead, and Gibson didn't stop it, did you?

Dr. GIBSON. I put it up to the county.

Senator WHITE. There is that herd of dairy cattle that went out over the States. When they went into Iowa, notwithstanding the fact that they had been treated the same way in the other States, our State veterinarian had the power to put a 90-day quarantine on them. There was no reason why these should have been quarantined in Iowa any more than in any other State.

Mr. ADKINS. In this matter of lack of cooperation on the part of stockmen and the authorities who want to stamp out this foot-and-mouth disease, it seems to me that there is one feature that was the greatest source of obstruction to stamping out this disease and that I haven't heard mentioned by anybody. When this scourge hit this State we had a law that provided that if for any reason the public killed any man's stock he was allowed a maximum amount of \$70. Another thing was that the people didn't know whether they would ever get a penny for the slaughter of any of their stock. As I found in my part of the State—and I happen to be in a position to know, as president of the Illinois Live Stock Breeders' Association—the men were of a disposition to disregard the quarantine.

I happened to be on a six-day program in McHenry County. We talked at the farmers' institute. On our first visit there, when we were having a night session at this little town, a report came of the foot-and-mouth disease breaking out in a dairy herd in that county.

The proceedings at once stopped, and they began to fire questions at this committee as to what should be done in order to stop and also to stamp out the disease. It meant everything to those men, because their entire bread and butter depended on the cows that were in the barn. The first thing that they wanted to be informed upon was how to proceed, not only to stamp out but also to prevent the spread of the disease. The county adviser advised that they proceed to establish a strict quarantine on every farm; said if they had any dogs, either to tie them up or shoot them; and if anybody proceeded to drive stock across the place, to stop them if necessary with a shotgun. That was the sentiment of the dairy farmers in McHenry County. In my own county, where five herds were destroyed, one man whose account at the bank was short \$6,500 came down to visit me after those cattle had been put under ground. The people were of course very much exercised over it. It would have put this man out of business—necessitated his selling his farm, because he owed on the farm and owed the bank for money he invested in cattle. They said, "Do you believe that there is a probability of our getting our money back for these cattle?" I said, "Gentlemen, I don't think there is any cause for being alarmed, because your cattle and your hogs have been put under ground for the good of the entire public, and I don't think there is any disposition on the part of the administration in this State to refuse to pay your money." They went back feeling pretty good. They all appreciated the fact that it was a very dangerous proposition. Of course there was some criticism, but under the circumstances I could not see how it could possibly have been handled better. True, after putting the herd under ground they delayed for several days before the cleaning-up process was begun. But when you think of the inexperience and the new things they had thrust upon them in such a large way, I don't see how they could have handled it much better.

I was charged with the duty of looking after the matter of compensation in the legislature, of getting the bill through to compensate these men for the money that they were out in the destruction of their herds, and also in passing a bill raising the limit so that a man could receive something for the future; and I didn't find a single disposition on the part of the administration in this State or on the part of the lawmakers of this State to warrant or suggest that the men who had borne the misfortune for the whole public should not be compensated. In this State, in my opinion—and I believe I was in a position to know something about the whole antagonism—the whole trouble on the part of the men who had cattle was that they didn't know whether they would get any money for the cattle. It meant bankruptcy to many of them. Before the legislature closed a bill was passed that went into the matter and found just what the Government had paid for their half and reimbursed those people the same amount out of the funds of the State of Illinois. I know the man quite well who had charge of it in the legislature, and he was very particular. Of course some men were dissatisfied with their appraisals, but that was no fault of anybody. They couldn't go behind that appraisal. I believe that if a future outbreak comes along the people will be in more of a disposition to get hold, with the authorities, to stamp it out, by reason of the fact that they feel

quite sure that they will be paid their money. To-day there is some \$44,000 due the people of this State for cattle that have been underground and for which there is no appropriation, and there is a great hubbub as to whether a special session will be called for that. The State of Illinois, as my friend Wilson said, never repudiated a debt. I think this has been an education to the people of Illinois, and that in future outbreaks of this kind we will not have this trouble of men opposing the authorities in any particular, because they feel assured that Illinois will act fairly, and they will be very glad to cooperate.

In the case of McHenry County, when I was up there, and the word first came that it had broken out, and when the whole community depended on the cows for their bread and butter and for the support of their families, they were a representative body of farmers in that town, and I know the precautions they suggested to be taken, and I know how anxious they were for the information that would place them in a position not only to stamp it out but prevent the spread. I think the general public has since become educated as to what the outcome and the compensation would be.

In a general epidemic as this has been, as calamitous in its effect as it has been, I wouldn't want to be the man who had the responsibility of stamping it out, because no matter how efficient or how able the man at the head was, it would devilishly near ruin him when he had the job done because of the fact that you have got to make arbitrary rulings, because you have got to establish arbitrary lines, and you can't do that without hurting some men, and you never could stamp it out unless you did. All these opinions expressed and all these conditions that have been explained here at this meeting will be another matter of education to the department in future outbreaks as to how to proceed and do the least harm possible to the business and yet effectively stamp it out. And I want to emphasize again, Mr. Chairman, that the one great cause of hindrance and obstructions and of nervousness on the part of the owners was that uncertainty as to whether or not they would be compensated for taking their all. I think that the experience we have had and the disposition on the part of the government of this State and, I presume, on the part of the governments of other States to recompense these men for a great public calamity will make them feel more secure if that comes again. We will not meet in many localities with that difficulty and nervousness and dissatisfaction that we had in the past in going through this. [Applause.]

Mr. MERCER. Mr. Chairman and gentlemen, I want to speak about this question of a quarantine not from a technical standpoint, but from the practical viewpoint; not from the point of being a technical man or veterinarian, but from the fact that I have had considerable experience in sanitary work in my State (Kansas).

I do not agree with the gentlemen from Iowa in every particular so far as quarantine lines are concerned. I do agree with him, however, that it is almost impossible to comply with one requirement applying to all sections. I view it from the conditions in my own State. We were unfortunate to have an outbreak of foot-and-mouth disease in Kansas. That condition was brought about by exposure out of the Chicago stockyards. It was not through the inefficiency of any sanitary officers, or the lack of requirements of the Bureau of

Animal Industry; it was simply an unfortunate happening. Our sanitary officer at that time, my predecessor in office, granted a special permit, which was not in conflict in any way with the Federal requirements, for a shipment of a few cars of dairy cattle from northern Wisconsin into our State. The only mistake he made was that they should not have been routed through any territory where the disease was. The cattle were routed through Chicago, but the stipulation was that they were not to be unloaded in transit, and the feed and water was provided in accordance with those requirements. But when they reached Chicago they had failed to comply with one of the requirements of the laws of Kansas, the tuberculin-test certificate accompanying this shipment had been omitted, and the Santa Fe Railroad would not ship them until that requirement was complied with. Consequently they had to wire back and have those papers sent on, and therefore the shipment was delayed 34 hours, I believe, in Chicago. The owners of those cattle went down on the yard. They claim they did not go around much in the yard, but went down to the Exchange Building. They came back to the car and fixed the feed and water of those cattle. In eight days, after they arrived down in our State, the disease broke out. I am not here to criticize anybody—I think the word “criticize” should be left out of these arguments—we all have opinions upon these subjects, and if they vary from the other opinions we are not criticizing the other man for his opinion, but are simply stating our own. If there was any mistake made, it was in permitting any person to go down on the Chicago stockyards. They should simply have quarantined those yards as they quarantined my farm or my neighbor’s farm, and not permitted anybody to go on those yards until they knew everything of an infective nature was eliminated, and then released them as they release the farms. That would, of course, necessitate a great hardship on the country and also a great hardship on the Chicago stock business. I maintain that they should have exacted the necessary requirements of the Chicago stockyards when they became infected, as they do with the farmer; business should not have been transacted there until everything was eliminated and all possible chance of exposure past.

As to quarantine lines, I am offering what I know from my experience and my work in that line of business. The Bureau of Animal Industry is all right; it is a great organization, and, out in our State, we appreciate the things they do for us. But they are only men, and they are just like the rest of us; they make mistakes sometimes. We hear talk about cooperation; but, gentlemen, in our State, at least, we want to do a little of the cooperation and not let the other fellow do it all. We are perfectly willing to cooperate, and to cooperate with the Government, but we want them—and this is offered in a suggestive manner and not in a criticizing manner—to take up some of the things we believe are in the best interests of our community, and I believe we are in a position to know what is best. The quarantining of counties is wrong. The quarantining of a State is wrong. The conditions of a county and the conditions of a State should be taken into consideration. I do not know what is best for Illinois. I do not know what is best for Iowa. But I believe I know what is best for Kansas, and I say that when you

quarantine an entire county in the State of Kansas because of one outbreak in one county it is wrong, and I will show you why, from the producer's end of it at least. Here is a case of foot-and-mouth disease. It is not centralized in the county, and they quarantine that entire county. The districts where this outbreak occurred are the heavy meat-producing districts of our State. The farmers are feeding large and small herds of cattle and hogs, and they have got them ready for the market and are shipping them every day. Thereby you tie up a business, you deprive those men of their rights, and you have, consequently, forced great losses upon them when, I think, this could be eliminated. To show the inconsistency of these county quarantines, the outbreak in Butler County, in our State, was within 12 miles of the Greenwood County line, and 10 miles from the Chase County line. Butler County is larger than some of your eastern States. You can set the State of Rhode Island in it and then there will be a little left on the outside. Therefore, 12 miles from that county, a man was prohibited from going to market for a certain period of time on account of the closed county. He couldn't go to market anywhere. Twelve miles to his right, his neighbor could go where he pleased. That is not consistent, and I say it with all due consideration to men's opinions, and as a matter of telling what I believe will be of benefit, and not in the way of criticism at all. I say if the cause of quarantine is a mild outbreak on one farm, there should be an area of, perhaps, 10 miles around that farm. One herd of cattle that was destroyed in my State would have paid for a man on every foot surrounding that ground.

There are men here connected with the Bureau of Animal Industry and they can tell you that there was no opposition on the part of citizens of my State to any quarantine method after the thing had been established. There was criticism. There was complaint made by men who were tied up and couldn't get to market with their cattle. For instance, a man had 100 head of about 1,600-pound steers. He was within half a mile of the Greenwood County line. His neighbor just half a mile away could ship his cattle to market at Kansas City or anywhere he pleased, but the first man was tied up there for a long while, and at a great loss to him, because during the winter months it was an extravagant proposition to feed cattle, and especially full feed. That condition is wrong. The sanitary officers in charge, both State and Federal, ought to have been equipped with the right, and I think are—I know they are in our State—to go to that man's place and say, "We will inspect your cattle carefully. We will permit you to route them on cars if they are all right." I think that condition ought to prevail. You can't please everybody, it is true, but you can hold those men within this 10-mile area, and if the sacrifice comes, let the county and the State and the Government help the people who sacrifice their property. There is no need of tying up such a vast territory; this has been proved by the manner in which the disease was handled in our State without getting away.

We had six outbreaks over there, two originating from the stock-yards here. The others we know must have come from that infection.

Talk about the wide range of territory to be placed under quarantine—it was 44 miles by air line across from where this infection occurred first in Kansas to where the third outbreak occurred. We have traced every angle of possibility how it got over there, and the only conclusion so far as our State investigation goes is that it was carried by crows. We couldn't find whether there had been anybody down in that county. In that section of the country we raise a large amount of kafir corn, and along the streams we have great bebies of crows that roost in certain places, and just a little east of this farm is one of those crow roosts. I presume the crows travel a good many miles, and they may have gone down in the county where this infection was and carried it back to this farm.

We destroyed two herds of over a thousand head, and, of course, this was a big loss to our State, but the loss to our State on account of paying for those cattle was nothing compared with the loss to the business of the country. It has been one of the demoralizing features of the beef business, at least during the past year in the United States. The packers say so; the men who buy the stuff say so. While the dairy interests of this country form a great industry, and breeding pure-blooded cattle is a great industry, they do not compare with the meat-producing interests of the country.

The one great thing, to my mind, is to find out how to keep out of this country the foot-and-mouth infection. While it is a serious proposition, I believe that so far as the State of Kansas is concerned, in cooperation with the Bureau of Animal Industry, we know how to handle it, and we don't get any opposition from citizens. Furthermore, I want to say to the citizens of Illinois, I sympathize with you. I believe that there are embargoes placed against you that are wrong. But, gentlemen, let me give you a little advice, if you will take it, please. You have got to do a few things in Illinois before your outside sister States will have all the confidence in you that they should have. You have a man in this State who has caused us much trouble by shipping diseased cattle from Illinois into our State. I believe it is a crime against the interest of your State for the State of Kansas to prohibit the shipment of stock from the northern part of your State. But we are doing it. Why? Because our sister States west of us and south of us say, "Here, if you let stuff from the State of Illinois come into Kansas, we will prohibit your shipping anything from the State of Kansas into our State." We were prohibited from taking our fine stock to California just because we had let some stock from Illinois into our State.

The subject of quarantines, to my mind, is one of great importance, especially in a State like Kansas or States farther west. That is one of the things that I want to leave with the Bureau of Animal Industry to take up, to have flexible rules, to give more authority to their inspectors in charge and not wait until the chief at Washington says what you can or can not do, but to confide in those men the power to take action without waiting. That is my opinion; it may not be in accordance with yours; but it is my opinion that the inspectors in charge, the men on the ground, are the men that understand the proposition better than the man at Washington.

I would like to speak a few words with reference to the Wichita stockyards. I am not defending the stockyards. I am not here

defending the carriers. I think the railroad representatives at this meeting have been conspicuous by their silence. Why? Because they have fortified themselves with the right to charge the producers of this country for the disinfecting of their cars. It is only a business proposition with them. We ought to investigate whether or not we have to pay it. But they are permitted, under the Interstate Commerce Commission's rulings, to make charges of \$2.50 and \$4 a car. Therefore, they have no kick coming. A stockyard man said to me this morning, "We ought to have a right to charge, too; therefore it is unfortunate for the stockyards of the United States that they are not under governmental control." But as it is a private proposition, unless they can get some consideration from the States and the Government, they are going to have to pay for their own disinfecting. There are lots of things that I could go on and tell you about from actual experience, but I will not detain you longer, and I thank you for your attention.

Mr. J. BROWN. Mr. Adkins spoke in regard to the uncertainty of the Illinois appropriation for the deficit which we now face. I believe he mentioned it as some \$47,000. The actual deficit is \$116,700, as explained last night by Gov. Dunne. I just returned this morning from a conference with Gov. Dunne and the chairman of the committee on agriculture in the house. There were delegates from the Chicago Live Stock Exchange and the two live-stock banks at the stockyards. A subcommittee of the house committee, together with our exchange committee, visited the governor last night at the mansion. We spoke on the necessity of the governor issuing a call. The house committee unanimously voted and passed a resolution calling upon the governor to issue a supplemental call. He assured us that he will give careful consideration to this matter, and I understand that he gave the information privately that he would call a special session of the legislature immediately after the session of January to vote on the appropriation for foot-and-mouth disease.

Mr. ADKINS. My authority was the chairman of the live-stock commission in this State, who stated to me last night—I expect he will correct me if I should quote him wrongly—that the amount that would be due to stock owners for stock slaughtered in this recent outbreak exceeded this \$200,000 by \$44,000. He also stated to me that vouchers would be issued, in case a special session was not called for that deficit, which would draw interest until the next session of the legislature appropriated.

Mr. J. BROWN. At the governor's last night, the secretary of the State board read a recapitulation of the entire claims against the State, and the total was \$316,727, of which some \$278,000 was actual claims for live stock slaughtered, and the balance was expenses incident to the burial and disinfection.

Mr. FRENCH. I want to congratulate Dr. Gibson upon his change of heart. He is very earnest that there shall be no special dispensations in this foot-and-mouth disease, and up to the present time the only special dispensations that have been granted have been granted through his office. I am glad he is going to treat them all alike after this. In order to find out how the quarantine worked in a practical way, I had a few county attorneys in Iowa, reputable people, gather evidence. I am not going to inflict that upon you,

because there is no necessity. But I am very pleased that that is all going to be changed. I think you will change it much quicker by reducing the area so that the State veterinarian will not have to make exceptions "under peculiar circumstances" so often. I will read from George Clawson, county attorney, of Clinton, Iowa, a man of unquestioned integrity and a good, law-abiding citizen, with which I will conclude my remarks. After writing about the data and submitting all these affidavits of this unfortunate grafting, he closes: "There were any God's quantity of special dispensations from Gibson's office permitting the shipment of stock, and I would like to see the law in such shape that the State veterinarian as well as other people would have to respect it, and so that no man could tamper with it with impunity." And there is where I stand.

Mr. DAN C. SMITH. We are not here to air our special troubles. From all I have heard and all the information I have, the Wichita stockyards bears the distinction of having been quarantined twice without the foot-and-mouth disease. Foot-and-mouth disease was 25 miles from Wichita. We were caused to clean and disinfect twice and fumigate all buildings. The mistakes of the past can not be corrected unless they are known. I am glad to know that the authorities in Washington admit they are human beings and liable to mistakes, because out in Kansas we have been led to believe that they can't make mistakes. I had a case in November where we were quarantined on an improper diagnosis of a case. At the end of their test period, or within one day of the end of their test period, they caused us to disinfect my entire stockyards, but admitting that we never had the foot-and-mouth disease in the stockyards or traceable to them. The next case was when the foot-and-mouth disease was actually in Kansas. The Butler County area was reduced to 5 miles. In two days it was to be reduced to 3 miles. A shipper from within the 5-mile area but outside of the 3-mile area shipped a load of hogs and got it by one of the inspectors. It got into the stockyards. They said the stockyards must be cleaned and disinfected, although "the day after to-morrow we are going to reduce the area"; and the reason we were told to do that disinfecting was because it was in the book. I would like to get this statement in the record [handing a paper to the stenographer].

The statement referred to is as follows:

EXAMPLES OF HANDLING FOOT-AND-MOUTH QUARANTINE, WICHITA UNION STOCKYARDS, WICHITA, KANS.

Sunday, November 22, 1914, 11 o'clock a. m., stockyards company and railroads notified by Dr. James S. Kelly, inspector in charge, no stock allowed handled Wichita yards except for immediate slaughter, account some hogs in plant of the Wichita-Oklahoma Serum Co. discovered November 18, 1914, by Dr. Dean, in charge of serum plants.

Thursday before two calves were inoculated by Dean with scrapings from the mouths of suspicious hogs. Later found to be improperly done. Dr. Hanawalt ordered to Wichita; arrived November 20 or 21. One of the calves improperly inoculated died November 22 from blood poisoning. Dr. Hanawalt immediately pronounced the case "foot-and-mouth disease."

Dr. Johnson had been ordered to Wichita; arrived about November 23 or 24. Found calves had been improperly inoculated. Commenced further tests, inoculating some calves, commencing November 24, the test to cover a period of six days, which ended 3 p. m. November 30. Quarantine raised noon December 1.

None of the local veterinarians or any of the Government inspectors pronounced the cases foot-and-mouth disease with the exception of Hanawalt. Evidently rules prevented Dr. Johnson from correcting the mistake made by Hanawalt and Dean without the result of the six-day test.

After it was practically determined the infection was not foot-and-mouth disease, the stockyards company were instructed to clean and disinfect their entire stockyard, which was done at an expense of about \$3,000. It would be hard to estimate the loss due to mistakes of Hanawalt and Dean, but careful figures show the loss not less than \$50,000.

This whole affair was later referred to Dr. Mohler, calling attention to the extreme loss account inexperienced men being placed on the work. His reply is that Hanawalt and Johnson had experience in 1908. Evidently their experience in 1908 was not sufficient for them to handle a case that resulted in such damage.

January 30, 1915, foot-and-mouth disease was discovered in a load of cows which had arrived at Mulvane and Winfield, Kans. On account of infected animals at Mulvane being 5 or 6 miles north of the county line (Wichita is about 25 or 30 miles north of the county line), the Wichita stockyards were placed in closed quarantine at 4 p. m. February 1.

Other quarantines were placed on four counties in Kansas—Sedgwick, Butler, Sumner, and Cowley. Some were modified from time to time until the yards were finally released, along with Sedgwick, Cowley, and Sumner Counties, on May 17, Butler County remaining "restricted." The regulations governing Butler County were modified from time to time, and the Wichita stockyards were caused to thoroughly clean and disinfect their yards, and "test" animals were run throughout the yards. Also parts of the yards were caused to be cleaned and disinfected; in fact the Government representatives seemed to order cleaning and disinfecting work done indiscriminately.

Finally, the Butler County restrictions were cut down to a 5-mile circle, which takes in Eldorado, Kans. However, Eldorado is not in the 3-mile circle. Four cars of hogs were shipped from Eldorado along about June 15, having originated within the 5-mile circle, but outside the 3-mile circle. These hogs got by the Government inspectors some way and arrived in the Wichita yards, but were not reported. Along about 16th or 17th of June one car of hogs was shipped and caught by the Government inspectors. The matter was reported to Washington, and word was sent back to require the stockyards to clean and disinfect their alleys, pens, chutes, drives, and, in fact, all territory over which hogs moved up to the packing houses.

About this time the question came up of reducing the 3-mile circle, and Dr. Melvin wired June 18 that the quarantine would be modified to take in the 3-mile circle, effective 21st. Naturally it seemed that with the change coming on the 21st the yard would not be required to clean and disinfect on account of some animals that had moved a few days before. This was wired to Dr. Melvin, with a statement of the facts, and the following reply was received:

"Must consider exposed all pens and chutes occupied by stock from exposed territory until cleaned and disinfected; other States look to department for complete enforcement of regulations as written; it would be unfair to them to do otherwise."

Consequently the cleaning and disinfecting was done.

Dr. MAYO. One suggestion might be helpful. There is a tendency on the part of some States by legislative action to establish a State constabulary—a mounted police, if you choose—somewhat similar to the Canadian Northwest mounted police. In doing live-stock sanitary work for some years for the Republic of Cuba, where they had rural guards—a detachment of rural guards who policed the country and were stationed around in all the small county districts of Cuba—I found them an exceedingly efficient force to place quarantines and hold them. It seems to me that, looking to the future, if the States have an efficient, trained constabulary, in public calamities of this kind you would have an efficient, trained force under a competent single authority to whom definite instructions could be given to handle such conditions as may arise as we have had to deal

with in the past two years. I simply offer that as a suggestion, because I can assure you from experience that it is the most efficient force I have ever found in many years of live-stock sanitary work in holding a quarantine. You have it right on the spot and you can put it right into effect.

MR. T. WILLIAMS. Dr. Gibson's paper brings to my mind a rather old, old story. I guess you have all heard it, but it is so pat that I can not help repeating it. You have all heard about the fellow who got a little hilarious and found himself in jail. He telephoned his attorney and told him he wanted him to come down and get him out of jail. The attorney said, "What did you do?" He said, "I did so and so." "Well," the attorney said, "they can not put you in jail for that." He said, "That has nothing to do with it. I am in jail, and I want you to come down and get me out."

Dr. Gibson said in his paper that he is opposed to a lot of things that we are opposed to, but he has us in jail in Illinois 150 miles away from the disease, and the disease is practically all in McDonough County within 30 miles of his own State line. Perhaps I am one of those ignorant fellows who can not understand it, but I can not get it through my head how you can say that certain territory 30 miles away is free and territory nearly 150 miles away is dangerous. We are in free territory according to the United States Government, and, furthermore, there has not been any case in northwestern Illinois since early last May, if I remember correctly, except one supposed case in Whiteside County, which was within $3\frac{1}{2}$ miles of the Iowa State line. I do not believe that was a case of foot-and-mouth disease, and I don't believe that the veterinarians believe it now; but I believe they did the right thing in putting them under the ground and putting on a quarantine which was temporary; but I do not believe that we who are 30 or 40 or 50 miles away, or at least 30 miles away from that case should have come under quarantine. That quarantine should stop 5 miles west, even if it had to step over the State line of Iowa and put these fellows under the same restrictions that we 30 miles to the east were put under. I do not believe that these carriers carry geographical maps with them to stop at imaginary State lines. It may be that they do, but I don't believe it. I want to say on behalf of most of the stockmen that I come in contact with that we are willing to support the veterinary department, National and State. We are willing to do anything within reason, if predicated upon two things: First, pay for the stuff you destroy; and, second, make the quarantine rational and reasonable. I would like to have Dr. Gibson answer me on these two points.

SENATOR WHITE. Will you include stuff directly and indirectly damaged?

MR. T. WILLIAMS. Yes. I would quote one instance in Whiteside County, which most of us believe was not foot-and-mouth disease. A man was thrashing on his farm, and a little fellow drove in and said, "You can't go on thrashing." He said, "Let us go on and finish." The other fellow said, "Nothing doing." It rained on that man's wheat and it was ruined, and he should have been paid for it.

MR. GRAFF. Yesterday morning, Mr. Chairman, I was much amused and much pleased to discover early in this conference that we had a chairman that was a chairman. [Applause.] This morning, the meeting seems to have developed into a meeting of giving

our experiences, and I wish to give mine in connection with this work. My experiences along this line within the past year are worth something to you. They have been to me. I am a breeder of live stock. At the present time I am president of the American Red Polled Cattle Club. I am here to-day representing the Nebraska Improved Live Stock Breeders' Association.

Mr. Chairman, for years the breeders of improved live stock have read more or less about the organization calling itself the United States Live Stock Sanitary Association. I noticed yesterday morning that these big posters were stuck up back of the chairman. A great many people in this country think—and they do not know any better to this day—that this organization is a branch of the Bureau of Animal Industry with headquarters at Chicago. The president of a big State live-stock sanitary association until the last few months was unaware but what that association represented the Bureau of Animal Industry of this country. [Laughter.] The veterinarians in that bunch have manipulated this meeting up to this time. If I am not sure about that, I am not sure about anything. [Laughter.] I object to the methods of this organization. They use the word co-operation, but I can't see that that association is trying to cooperate at any time with the breeders and stockmen of this country. They are a closed organization, as I found out. There are good fellows in that organization—I know quite a few of them, and they are big, able men; but I am afraid that they have not got control of that organization. I put in my application to become a member after these men said, "Why, we want you, Graff. We want you breeders in." I paid my fee, and had a membership button pinned on me, and I sat there for three days trying to find a live-stock breeder as a member of that organization. I failed to do it. Upon the last day, when I got courage enough to take the floor, I asked them to give the live-stock breeder and the farmers the benefit of this proposition, and implored and begged them to cooperate with these men in anything that they took up with the Bureau of Animal Industry. I saw long before I quit speaking that it gave one the impression of being at a funeral. I was anxious that they get up and tear my argument to pieces. There was nothing done. Following that, a resolution was introduced which would put such fellows as me in the "nigger heaven" in that organization. That resolution is now before the executive committee of that organization, and I understand will be disposed of within the next few days. It is immaterial to me what they do with it. It was immaterial to me what they did with me, so I will have to tell you that. I made a report of my findings at that meeting, and there was some objection to that report. The executive committee got together in a hurry and they fired me out of that organization. I have read the by-laws of that organization, but I can not find wherein it states that a member should not have at least a right to a hearing before he should be put on a midnight flier with a muffler in good working order and railroaded out of that organization. [Laughter.]

Gentlemen, I know there are some of you here that belong to this organization. I know that some of the members of the Bureau of Animal Industry who are here now were here last year. They were members the same as I was then; but I have noticed all through the session, as one gentleman said to me yesterday, "I don't know, Graff;

there is some undercurrent; there is something wrong here." Why, of course, there is something wrong. The farmer, the stockman, the improved-live-stock breeder, in fact, the men actually identified and seriously interested in agriculture and live stock, whom this meeting was called for, have had little to say. I notice a few of those old hayseeds like myself that have the courage of their convictions to stand up and tell their troubles. You men in Illinois have my sympathy.

I wish to say that I have nothing to criticize in what our Bureau of Animal Industry has done. I have been identified in a local way in politics. I know how a great many of these things are done; and the criticism that is raised against the action of the Bureau of Animal Industry in fighting this foot-and-mouth disease, I believe, is largely brought about by those that are now out and would like to be in. [Applause.] I feel, gentlemen, that we have the men in this country that are qualified. We have them all over this country; even in Nebraska we have them. We have been able to keep out foot-and-mouth disease by the assistance of the Federal Bureau of Animal Industry; but I do hate to hear anyone reflect upon the dishonorable, dishonest stock breeder and farmer. I admit the average stock breeder is not as well posted on these questions as he would like to be and should be, but I am glad that the department has called this meeting for these few farmers and stockmen that had the gumption to come here, as I did, and has given them a hearing. I was tickled to death yesterday when the chairman of the meeting told them emphatically that no resolutions would be made. No man on earth believes more in having cooperation than myself, and I again ask these men, in anything they put up to the Bureau of Animal Industry, that they first consult and have the consent of the breeders of this country. [Applause.]

Mr. VROOMAN. A couple of questions were addressed to Dr. Gibson. I should like to have the doctor respond.

Dr. GIBSON. The first was by Mr. Williams, of Sterling, Ill., as to why we made some exceptions in our dealings with Illinois. In the first place, all our regulations are formulated by the commission of animal health of the State of Iowa, consisting of two veterinarians of the live-stock commission and the State veterinarian, and these regulations must be approved by the executive council, consisting of the governor, the secretary of state, and the auditor of state. Everything that has been done has been approved and everything that has been done by the animal health commission has been done by unanimous vote, except the bringing home of the two herds from the National Dairy Show. They voted 2 to 2 to say whether to permit these cattle to return to Iowa, and I cast the deciding vote that they should permit them to return to Iowa. The conditions in Illinois led our commission to do what we did. Mr. Graff has spoken about an undercurrent. There is an undercurrent to almost every stream, and there was some undercurrent information about some things going on in Illinois not satisfactory to our commission and not for the best of the people in Iowa. The straw that broke the camel's back was the last injunction. We then took action, not against any part of Illinois, but against Illinois until Illinois got to going right. I admit that they have done wonderfully well, and I wish to say that

the various embargoes helped the bureau and helped the sanitary commission of Illinois and the State veterinarian of Illinois, and helped to stamp out foot-and-mouth disease in Illinois. I expect you are going to stamp it out, but I don't think you were going in the right direction until the States placed this embargo.

Some time ago I wrote to Dr. Dyson that the majority of the members of our commission would be with me and glad to consult with him at this meeting. I believe Illinois has got in safe condition. I believe we can deal with them with a reasonable degree of safety. There was a time, however, that things did not go to suit us. The main thing is that when you have cooperation between the bureau and State authorities, that won't do. The people must cooperate or we can never stamp out foot-and-mouth disease in any State. I believe the people of Illinois realize that they must cooperate.

Some one to-day made the remark about my visiting the Marsh herd. I guess most of you admit that they are the best herd of Guernsey cattle on earth. I don't think I ever saw anything to equal them. I visited that herd and also Col. French's herd just before the 90-day period was up. I did not disinfect myself. We were coming to the close of the quarantine that we thought was proper, and I saw no reason for disinfecting myself on leaving the Marsh farm for Col. French's. When I went to Col. French's they had been released by the Bureau of Animal Industry and placed under secondary State quarantine. The milk was fed to pigs and calves, and they did splendidly, and I am glad they came out that way, and I am glad for the owners. I am glad for the State of Iowa that they did not carry any infection there. The Bureau of Animal Industry did not make any suggestion to the States that they should hold cattle for a longer period of time, but I believe the Bureau of Animal Industry approved the secondary State quarantine placed on these show herds. Col. French and Senator White are personal friends, and personally we are on the very best of terms. It is just a little difference of opinion. We tried to do our duty, and you know there have been objections to what we considered our duty in the various States in connection with foot-and-mouth disease.

Col. French said something about special privileges, and I would ask the colonel to furnish me an instance where any special privileges were granted covering the movement of live stock from any quarantined area. There was a time when we did, in cooperation with the bureau, permit the movement of bona fide tenant farmers upon inspection and affidavit by the owner that no reshipment would be made to the county from which they originated. There was, however, one shipment of 100 hogs from the corner of Senator White's county. A man had 100 hogs threatened with hog cholera. Serum plants were closed, and we inspected the hogs. That one special privilege became known all over the quarantined area within 24 hours, and I said "That is the last special privilege." We have tried in the State of Iowa to cooperate absolutely with the Bureau of Animal Industry, and I think the bureau will back us up in that statement. I think I was a little more particular in the holding of some public sales than the bureau required me to be, but our aim was, as I put it: "I will play the second violin as harmoniously as I can. Please lead." That was the basis upon which we worked in Iowa.

Mr. VROOMAN. I want to call on a gentleman here this morning, before the last paper is read, to discuss a problem which we discussed last night until we had to stop on account of the lateness of the hour. Dean Moore has consented to talk on the origin of foot-and-mouth disease.

THE CAUSE OF FOOT-AND-MOUTH DISEASE.

Dr. MOORE. Mr. Chairman, the topic of the cause of foot-and-mouth disease was brought up last evening, and Mr. Tomlinson made the statement that he was very anxious to know something about the cause, and that he had hoped to learn something about it at this meeting, but that it had been rather systematically left out. In some of those remarks last evening the question was raised as to why work had not been done on this disease during these outbreaks. I do not know that I have anything to say that will help us in that respect, but I do think that we can understand one or two things that those who are not technically acquainted with the matter of animal diseases do not seem fully to appreciate.

The point is that we are dealing in this case with an infectious disease new to many of us in this country, but old as the centuries so far as the disease is concerned. We know that plagues like foot-and-mouth disease came into civilized Europe a long time ago. We do not know from whence they came exactly, but we do know that they came into Europe through the importation of animals from Asia and perhaps Africa. We know that 150 years ago or so they were serious, that the dealers in cattle were unable to do anything with them, and for that reason the Governments of Europe established veterinary colleges for the purpose of training men to take charge of that kind of work. But the nature of these diseases was not known, and investigations went on, and little by little men learned about these diseases. We got the cause of tuberculosis, of glanders, and of many others. These could be studied and experimented with; but after that was done, there were still other diseases that were unknown. Texas fever, for example; the nature of it was unknown. And then new methods were developed; and they studied the blood, and they studied another group of organisms—the protozoa; and the specific cause of another group of diseases was made known. Then still there were many diseases, not only of animals, but of men. And so during these last 50 years a great army of the most devoted, of the most earnest and sincere scientists in the world have been studying the nature of the cause of these epizootics, in the most conspicuous of which they have yet failed to find the particular organism. We don't know anything about the cause of smallpox, or scarlatina, or measles, or chickenpox as yet, so far as definite organisms are concerned. We don't know anything about the cause of rinderpest except that there is something in the tissues and in certain parts of the body of those animals that will transmit the disease to others. And so by elimination we have come to know that certain diseases, certain phenomena of nature, are due to something that as yet God Almighty has not allowed man to define, and it is no disgrace.

We have been working at foot-and-mouth disease. Some day somebody will write the story of the disease and will tell us the

length and breadth and the property of the particular living force in nature that is the cause of it; but until somebody can wrench this secret from nature no man can describe it. But we have learned, as I tried to state briefly yesterday, that there is something in the vesicles of foot-and-mouth disease that when it gets into the bodies of susceptible animals—and nearly all of them are susceptible—will produce this disease. It appears in the mouth; it appears on the udder; it appears on the feet mostly; it appears sometimes in the digestive tract. It is selective; it somehow has to be that in order to escape. It would seem that the cause of foot-and-mouth disease has a hard struggle to perpetuate itself under natural conditions. It is found that this thing will pass through the finest filter, and it is called a filterable virus; but what it is, whether it is a definite organism, whether it belongs to the vegetable kingdom or the animal kingdom we do not know. As Dr. Vaughan says, it isn't necessary that it belong to either. It isn't necessary that it is a particular piece of protein at all. We don't know about those things, and it seems unfair to think that when an outbreak of this kind occurs we should tell at once the cause of it. The best men in the world for half a century have been trying to find out, and they have failed; and they have not only failed in this instance, they have failed in rinderpest, in smallpox, and in scarlet fever. In this very city there is a magnificent institution for the study of the cause of scarlet fever, with the best medical brains in the world working at it, and they have been at it for years, and they can't get up here and tell us the cause any more than we can tell the cause of foot-and-mouth disease. But we know that it is something that is transmitted to the susceptible animal that will reproduce this phenomenon. And that is all, unfortunately, that we know about it.

Contagious pleuro-pneumonia was a disease that came to this country. Some of you may know much more about it than I. It got as far west as Chicago. That noble man, Dr. Melvin's predecessor as Chief of the Bureau of Animal Industry, Dr. D. E. Salmon, who organized the bureau knew from the experience of the countries of Europe that the only way to keep that fearful disease out of America, and to save the live-stock interests of this country, was to eradicate; and he secured authority from Congress to do it; and contagious pleuro-pneumonia was eradicated by the slaughter of the diseased and exposed animals. And it has been kept out of this country ever since. Foot-and-mouth disease came in 1902, and Dr. Salmon, then at the head of the bureau, said, "We can't work with that disease in this country." I was one of a few men who consulted Dr. Salmon for the privilege of making some investigations on foot-and-mouth disease. He said, "This is merely an accident that has come here. This disease is here, and the only thing to do is to wipe it out." And they did it. And they did it again in 1908. Now we go back to the experience in Europe. They undertook to do this in Germany. Loeffler and others were working with this, working with it in laboratories, working with it in restricted areas as best they could. What happened? The disease got away from them. Two or three outbreaks resulted from infection from these places where they were studying it. It cost the German Government hundreds of thousands of marks for the losses it caused, and the Government said "No."

That good scientific conservative spirit of Germany said "No, we won't investigate this where there is danger of infection. Here is a thing we don't know anything about. We will put Loeffler and these fellows on an island in the Baltic Sea and let them work with it there." And they did work with it there. I am told it cost the German Government \$5,000,000 for the work they did in this particular disease in order to find out these things that we want to know about the cause.

It is for those reasons that investigational work has not been done here, as I understand it; and if I am not right Dr. Melvin will correct me.

Foot-and-mouth disease has been helped a great deal in its spread. We look back two or three hundred years ago, and it came very slowly from Asia into Europe. Why? Because the cattle were driven by the herdsmen. They only came a little way each year, and the diseased animals died out. Now, when it gets into a country like this, with cattle being shipped from coast to coast, and not a day's unnecessary delay allowed in shipment, we are shipping these cattle all over the country, and we are simply spreading the virus of this disease. The disease isn't responsible for that. It is the artificial conditions under which it got away. The question is, Does this country, does this Government, does any State, want to put up the millions of dollars that it will cost in the end to take some island somewhere and make some investigations of this disease, and determine just how long hides and muscle, etc., are going to be infected; or should we organize a system that will keep it out, as we have succeeded with contagious pleuro-pneumonia? Those are the questions that are before us. I wish I could tell the cause of the disease. Some day somebody probably will, and then we shall know exactly what to do, just as we know what to do with tuberculosis and with glanders. But the cause of it is known as a filtrable virus. It is in the liquid in the vesicles, and it will pass through a filter, and when it is carried to susceptible animals they will reproduce the disease. Unfortunately that is all that I can say. I hope that we will understand, however, that it isn't an easy thing to find out. [Applause.]

DISCUSSION.

Dr. FAVILL. Mr. Chairman, it seems to me that this is a favorable time, when Dr. Moore is here and talking on this subject, to clear up what has seemed to me an unfortunate misunderstanding, possibly, upon one question. A good deal has been said in reference to the experiments a few years ago by Prof. Loeffler on the subject of immunizing serum. A good deal of criticism has been directed against the Bureau of Animal Industry because it had taken no official cognizance of that and had done nothing with it as a practical thing. I think I know what Dr. Moore would think and say about that as a practical proposition; but I would like, as a matter of information, to know what Dr. Moore in his own sound judgment, which we respect, thinks as to the actual facts of the existence or the possibility of production of an immunizing serum.

Dr. MOORE. Mr. Chairman, this is a particular phase of the subject about which I have experienced nothing. That is one of the weak points in connection with the disease that if understood might throw some light on this subject. After I state a few things I am going

to ask the chairman if he will ask Dr. Eichhorn, who is more familiar with Dr. Loeffler's work on this particular point, to tell you. The point I want to bring out is this: With a great many infectious diseases, when the individual recovers from an attack, it is immune to subsequent attack; but with foot-and-mouth disease there is very little immunity from it. There may be some. It is a debated question in the literature on the subject, but there is not very much immunity conferred. Consequently, we can not hope to get a serum that will be very effective in the immunizing of these animals. As I understand it, Loeffler did succeed in immunizing animals to a small extent, but he took a very large amount of serum, so large it was impracticable.

DR. EICHHORN. The serum immunization against foot-and-mouth disease is nothing new. The German Government appointed a commission several years ago—I believe in 1898—to work out a satisfactory method by which it might be possible to combat the disease if it occurred in certain localities, and in that way check it before it became spread and endangered the entire country. The best workers in this line were selected, and they studied every method by which it would be possible to immunize the susceptible animals and prevent their contraction of the disease. Loeffler and Frosch were the first two men to undertake this great work, and they found that animals which have recovered from this disease possess certain natural immunity against subsequent attacks, but this immunity is not permanent; as a rule, they said, it lasts a year; in some instances longer. In exceptional cases the duration of this immunity is only several weeks. They injected the blood of such immune animals into susceptible animals, and tried to find if they possessed any resistance. They found they had some little resistance, but not enough to guard them against natural infection. They tried to reinforce this natural immunity by giving them the infection collected from the vesicles of foot-and-mouth disease, and thereby, just as in hog-cholera serum production, produced a hyperimmunity—excessive immunity—in these animals. In taking this serum from these animals, they found that when it was injected into susceptible animals they succeeded in producing considerably more immunity, and in such cases the animals showed a resistance even if the natural outbreak of disease should occur on the farms where they were.

For practical application it was found to be absolutely useless. In order to produce a serum for this immunization, it was necessary to propagate the disease in the most susceptible animals; that is, the animals giving the strongest virus. They had to inoculate hogs with the disease in order to collect that small amount of infective virus which collects in the vesicles during the disease. Those of you who have seen foot-and-mouth disease in hogs or in cattle know that these vesicles do not contain a great amount of this infective material that is used in order to get hyperimmunity for serum production. It is necessary to infect about 20 hogs to get the necessary material to hyperimmunize a single large animal for serum purposes. Such an animal is then bled, and the serum is taken and used for the immunization of susceptible animals. It does confer immunity almost in all instances, but it requires a large number of infected hogs to produce this serum in one cow, and such an animal only produces a

limited quantity of serum; so that in order to produce enough serum to get immunity in the susceptible animals, it is necessary to inject 150 to 200 cubic centimeters of serum, and not only once, but this has to be reinforced by two subsequent injections, necessitating about 300 cubic centimeters and three or four injections to confer immunity sufficiently strong to guard the animal against disease. They tested this method of immunizing on a practical scale, and found that it might be applied under restrictions in localities with some satisfaction; but propagation of the virus must be continued in order to get the serum, and a large number of hogs must be all the time infected to get virus for hyperimmunization; and, of course, a large number of cattle could not be vaccinated because of the difficulty in securing a sufficient amount of serum. We figure that the amount of serum produced in a single large animal, say a cow, after hyperimmunization, would not be more than about 4 quarts, and 4 quarts divided into the 300 centimeters necessary to immunize an animal would be enough for the immunization of 12 to 15 animals. Or, in order to get sufficient serum to vaccinate 15 animals, we would have to sacrifice 20 hogs, propagate foot-and-mouth virus in 20 hogs, and then also get the cattle which will produce the immune serum. Such a procedure on a large scale is almost impossible, and for this reason it has been decided even by the Prussian Government that for practical purposes the present method of producing a serum for the prevention of the spread of the disease is not practicable. They might use it in rare instances where disease is prevalent all the time, possibly for pure-bred cattle to guard them against the infection, but to prevent the spread of the disease it is not practicable, and this is recognized by every country where commissions have been appointed to study serum immunization as developed by Prof. Loeffler.

MR. MUNN. May I ask the doctor a question? You say that immunization may run for a year or possibly longer; am I correct in that?

DR. EICHHORN. The natural immunity is about a year or longer; that is the average. I may say that there are exceptions. There have been cases recorded in which the natural immunity after recovery of the disease persisted only several weeks.

MR. MUNN. What is the average immunity of animals that have had it?

DR. EICHHORN. I believe the average is between a year and two years.

MR. MUNN. I have read from the report of the royal veterinarian of Denmark that a natural immunity in most cases is full and complete.

DR. EICHHORN. No; I don't think they agree on that. This reference which you probably have is obtained from an article of Prof. Bang, which was prepared for a popular address before laymen. I can quote from Prof. Bang's personal communications and also from his writings that in most instances it will last two years, but there are some exceptions and, of course, they have to be taken into consideration.

MR. MUNN. Don't you think it would be possible to take some of these animals which have gone through the disease and have recovered for something over a year, and test the matter out with those animals and see what we can learn from them? In other words, it is

rather difficult to get animals that have been through the disease and have lived for a year or a year and a half to work on, but we have got some. Wouldn't it be constructive work to begin on those and find out more about it?

Dr. EICHHORN. If we would attempt to find out how long immunity would persist we would have to use the virus of foot-and-mouth disease on these animals, and that would be a very dangerous undertaking.

Mr. MUNN. You can always control it.

Dr. EICHHORN. Prof. Moore, in his remarks, stated that in the investigations Prof. Loeffler had taken all precautions to guard against the spread of the virus from his laboratories. Nevertheless, the German Government was forced on three occasions to pay damages because of outbreaks which resulted from the spread of the disease from these laboratories, and for this reason the German Government provided an island in the Baltic Sea for the study of the disease. It might be interesting to you to know that the immunity with the serum which is produced is a passing immunity; that is, it lasts only a limited time, from a few weeks to about two months at the longest. Of course such a short immunity is not very satisfactory where you have the disease constantly spreading.

Mr. VROOMAN. We now will pass to our paper of the morning. We have a very interesting subject, involving a looking at the problem before us from a little different angle—"The importance of speedy eradication of contagious live-stock diseases as affecting live-stock loans." We have speaking on this subject Mr. B. F. Harris, the farmer-banker, of Illinois.

DISEASE ERADICATION AND LIVE-STOCK LOANS.

By B. F. HARRIS, *Champaign, Ill.*

Mr. Secretary and ladies and gentlemen, I didn't have the pleasure of sitting in this conference yesterday. I have understood that you had very much of interest, as you have had this morning the hour or so that I have been here.

I want to say, before it gets off my mind and I get to my subject, that although it costs me a good deal of money, I want to indorse what Dr. Gibson said of Iowa's cooperating with Illinois in making a quarantine against Illinois. We talk a good deal about cooperation, as Mr. Graff said this morning; but we don't realize sometimes that cooperation of that kind *against* is just as favorable and more favorable in some respects than cooperating *with*. I am glad that the action of Iowa and some of the other States brought Illinois to her senses.

One of the best loans that any banker can make to a farmer—and I don't know of a loan that a banker can make to anybody that is better than a loan to a farmer—is on live stock or in connection with live stock. That is on the basis, of course, of the farmer's being prepared with his buildings and his feeding, knowing something about live stock; because under those conditions where the live stock is well bought it is getting more valuable every day, and is one of the most liquid assets that we have, provided we don't have to contend with disease. Very fortunately in this country we haven't any disease among cattle that is very serious, or is able to spread over any extended territory, except this new disease that we are just getting

acquainted with, and that we made more acquaintance with, it seems to me, than we ought to have made.

I told Secretary Vrooman that I didn't want to be put on the formal program, but that I was very glad to come up here as a farmer and stockman, and lend my moral support by what few words I might say to a movement that will do everything in its power to stop this disease in its inception.

I believe that it is a Federal matter very largely. Mr. Williams brought out the question of State lines and imaginary lines. I want to hold up the hands of any authorities that do everything in their power to stamp out this disease in its inception. In this country we are just beginning the work of real agriculture, the new methods of farming, and the country is being aroused in a wonderful way. I think those of us who have seen most of it feel, especially when we study the agriculture of Europe, that no sound system of agriculture that will maintain the soil and build up its fertility and make all-around farmers can be based on any other than a live-stock basis. And so, just as we are getting interest aroused in these better methods, to have the foot-and-mouth disease come in and have it spread as it has—and where it hasn't spread, it has cut off markets and reduced the opportunity for the farmer to get the profit that he should—it is discouraging to these very people that we are encouraging to go into the live-stock business. When we have this disease to contend with, loaning to men who are feeding live stock is a gamble, just as it is a gamble for a farmer to try to feed cattle.

My people have been in the live-stock business, feeding cattle in the central part of Illinois, for 85 years, and this is the first year that we haven't had cattle on our farms. With all the things we have to contend with, the foot-and-mouth disease, the uncertainties of the markets here in Chicago and a number of other things, together with the splendid profits that come from sheep and from hogs—well, just lately we haven't had any cattle on our farms. I say that with a good deal of regret, because I believe in the cattle business. And it is for that reason that I am here to say as a live-stock man—even where it has cost money, as the quarantine of Iowa against Illinois cost me money with the hogs that I could have sent to an Indianapolis market where I get more money invariably than I do from Chicago—that I am for anything that is going to shut off this trouble at its inception.

I don't want to say, without thinking of my adjectives a little carefully, just what I think of the way it was handled here in Chicago, or in this general neighborhood—dillydallying as we did; and I want to hold up the hands of all the authorities that do as they should do in these circumstances. And while they are at it, they might just as well go down the line with tuberculosis and hog cholera and all that sort of thing.

I believe the bankers are appreciating more and more all the while the value of live-stock loans, especially if too many of these cattle loan companies are not too careless with their people. But in these days, when the banks are loaded with money, they are going to do, if they are not careful, just what the brokers in Chicago, New York, and the other centers did with commercial paper when we were flush a few years ago. They were trying to induce all the manufacturers and the large jobbers and other users of money to come in—the water was fine, money was cheap, and they got them to expand. That is just the

trouble right now. The banks have more money on hand than they have had in some time, and while the war conditions and many other conditions have made them fairly careful so far there is the disposition to encourage everybody to get into the live-stock business. Loans are made in the West at 6, 7, 8, and 10 per cent and brought down here to Chicago and sold in Chicago banks at $4\frac{1}{2}$ and 5 per cent. There is a disposition to extend that a little more than we should. If we don't look out this country is in for a tremendous expansion, and we don't know what the situation may be when the war is over. As I say, the feeling of the banker is more and more in favor of the live-stock business and loans to farmers for that purpose. But I don't know of anything that will create a greater shock than this awful scourge, foot-and-mouth disease, except an epidemic in the human family. We must do everything we can to stamp it out and stamp it out promptly. [Applause.]

DISCUSSION.

Mr. VROOMAN. Does anybody care to discuss the talk of Mr. Harris?

Mr. RUSSELL. Bankers and loan companies are an absolute necessity for carrying on a cattle business, and, as the gentleman just said, when a disease such as this breaks out it creates a panic. We should stop that panic. How are we going to do that I do not know, but I have a suggestion. I think a gentleman from Illinois said that one of the prime things is to pay the live-stock men for the cattle they may have to kill. If we could in some way build up a fund whereby this money is available we would take two steps forward—we are preventing the possibility of the panic and we have insured the killing of the cattle and the elimination of the disease. In our State of Nebraska we have a bank guaranty law. Personally I never saw the wisdom of it—where one conservative fellow pays the losses of the wilcat fellow. I believe it is the duty of all the people to pay for these losses, but how are you going to get the legislature to make appropriations? We have not had foot-and-mouth disease. We asked for a \$50,000 appropriation, and they reduced it; and after very hard pressure we got the governor to approve it, and the law is now in effect in Nebraska. I believe it would be well to lay a small tax on the live stock owned by each man in the State—1, 2, or 3 cents—and create a reserve fund to be used in cases of this kind. While I do not think it is absolutely just, and I don't think our bank guaranty law is absolutely just, it might be worked to advantage.

Mr. McLEAN. I am from the county that has suffered worst, and the great problem with us is what are we going to do with the farmer who is quarantined. I wish somebody would inform me. We have a county quarantine on one-half of our county; 8,000 out of 16,000 have never had the disease. These men are miles away. They tried to get out, but they had difficulty in doing it. How are we going to take care of these men? One of my friends came to me and said, "What am I to do? My friend is all right; his cattle are dead. What am I to do with my fat hogs?" I would like a suggestion.

Prof. J. H. SKINNER. I think this paper of Dr. Gibson's should be indorsed. It may have to be changed in a few States, but the principle is constructive. I want to emphasize the importance of two points. One is that the nature of the disease should be put before the

people. The other point is the absolute quarantining of premises. These two points are very important in getting the proper cooperation.

Mr. SWIGART. In regard to getting rid of the trouble in McDonough County, my opinion is that when the unit of quarantine has been changed to miles instead of townships, counties, or States, and whenever the doctors can agree on how many miles is safe, a quarantine should be established around that and properly kept. I give Dr. Gibson credit for acting. I know of one doctor of another State who came over to a herd of 175 pure-bred cattle to investigate, when the doctors were just establishing the lines, and he happened to attend a meeting to have them agree upon what kind of quarantine they should establish. Some wanted the whole State, some the county, some the township; and the Government men really quarantined the county of St. Joseph and the county of Berrien, Michigan. The live-stock men were there, and the farmers and the doctors were just about to decide, when some one got up and said they ought not to establish a close quarantine around that area if not dangerous. They paid no attention to the close quarantine except around the immediate vicinity of the disease. They quarantined the whole county. Within a very short time the officials of the two States and the United States cooperating stamped out the first outbreak. By establishing a certain local area that you can properly control you will do much better than to quarantine the county, State, or the United States. You might as well quarantine the United States as a State or a big county that is 50 miles across. Just that particular center of infection should be quarantined, and have the doctors decide how close that should be; then you relieve all these men 20 or 30 or 40 miles away.

Mr. VROOMAN. If there are no further remarks, we will adjourn to meet at 2.15 sharp.

AFTERNOON SESSION.

Mr. VROOMAN. Gentlemen, this is our last session. We have two papers this afternoon of very great interest to us all; the first being by the dean of the agricultural editors of the United States, Henry Wallace, on the topic, "How can the agricultural press do the most for eradicating foot-and-mouth disease?" I take great pleasure in introducing to you Mr. Henry Wallace. [Applause.]

THE AGRICULTURAL PRESS AND FOOT-AND-MOUTH DISEASE.

By HENRY WALLACE,
Editor Wallace's Farmer.

I have been asked to speak on how the agricultural press can help most in the matter of eradicating foot-and-mouth disease.

The agricultural press is, or should be, the educator and adviser in matters agricultural. It should be the purveyor of practical and scientific information on crop growing, live-stock breeding and feeding, and other farm operations. It should establish such relations with its readers that they will look to it for safe advice on all

matters in which their interests are involved. Agricultural editors, therefore, should take pains to inform themselves thoroughly concerning such matters, that their advice may be good advice and their counsel wise counsel.

The rapidity with which this last outbreak of foot-and-mouth disease spread and the difficulties which arose in handling it were due largely to incompetence, ignorance, and lack of organization. The infrequency with which we have to deal with this disease in this country no doubt makes it very difficult to diagnose. A very large percentage of our veterinarians never saw a case of it. The fact that the disease got so well away from the point of origin and spread so rapidly seems to have been due to ignorance or carelessness on the part of some members of that profession who were in places of responsibility.

We have not had to deal with such serious epidemics and did not have well-organized quarantine methods. Consequently, as the disease spread it became necessary to extend quarantines very rapidly and over larger territory than would have been necessary under a well-worked-out system. If the disease broke out in a county, that county was quarantined. This resulted in great inconvenience and great financial losses to all of the farmers in that county, although the herds affected might be, and often were, located in one corner and much nearer to adjoining counties which were not quarantined. Many veterinarians were careless in handling diseased animals and unquestionably aided much in spreading the infection. Some of them were men of dissolute habits and failed to inspire confidence in the minds of the farmers either as to their professional ability or moral responsibility.

The fact that a very small percentage of affected animals die, and the further fact that the disease is very common in some foreign countries gave rise to wrong notions as to its serious character. Scattered throughout the corn belt are farmers who came from Europe and who remembered the prevalence of this disease there. They were eagerly listened to as they aired their supposed knowledge to their neighbors. The news that the dairy cattle in Chicago were in quarantine and would not be killed became generally known, and the man in the country whose cattle were attacked at once inquired why his cattle also could not be kept in quarantine and saved. It seemed to him that this disease was about like measles in human beings.

Ambitious politicians saw an opportunity to prove that they were the real simon-pure friends of the farmer, and they became active in trying to bring political pressure on the Bureau of Animal Industry. They spent weeks at some of the State general assemblies, interfering seriously with intelligent legislation. They made speeches in the country where farmers were losing heavily because of the quarantine abolished, and stirred up a lot of dissatisfaction and made a lot of trouble for the authorities who were doing their best to stamp out the plague.

The conditions which I have described developed very quickly. Editors of agricultural papers, knowing of the success which had followed the work of the Bureau of Animal Industry in dealing with previous outbreaks of this disease, had been contenting themselves with giving readers the news and information concerning the character of the disease. All at once they came to see that the live-stock

industry of the entire country was in imminent danger; that if the disease should once get loose in the country our system of handling live stock would be completely disorganized, and our pure bred interests might possibly be wiped out, and we would lose millions of dollars every year through the ravages of the disease.

Confronted with this situation, Wallace's Farmer very promptly adopted a definite policy, to which it has adhered. With the full realization that some of our veterinarians had bungled, and that probably there was incompetence in places of responsibility, and that the method of establishing quarantine was illogical and worked great hardships on thousands of innocent farmers, nevertheless it seemed to us imperative that the veterinary authorities should be sustained, that the policy of stamping out the disease by the destruction of infected animals might be vigorously pursued.

When the prairie fire is sweeping down on the home is no time to call folks together to ascertain who started it. The first thing to do is to put out the fire, obeying the orders of the men who seem to know best how to fight it. No time should be wasted in listening to meddling fellows who run about shouting, getting in the way of the men who are throwing up the fire guards and wielding the wet sacks.

We felt that the time to settle with incompetence was after the disease had been stamped out; and that the first thing to do was to impress upon the farmers and stockmen of the country the magnitude of the danger which threatened them. We think it fair to assume that most errors which have been made have been errors of judgment, to which all men are liable. It is also fair to assume that incompetent men will be weeded out, that more effective methods of handling the disease will be developed, and that the public will in the future be effectually guarded against such outbreaks.

It is my opinion, therefore, that the agricultural press should unitedly oppose any attempt to interfere with the State or Federal veterinarians by injunction or otherwise. Interference with the enforcement of the methods which have been found best to follow in stamping out this disease must naturally compel the people to undergo very great and severe losses. There has been much talk of incompetent veterinarians. Many of them have been accused of charging exorbitant fees. Without passing on the merits of such criticism, it must be clear to any man who will think about it that the more we trifle with the disease the greater the opportunity for incompetence and graft. The delays in the work of eradication caused by court injunctions secured at different times have cost the entire live-stock industry millions of dollars. The agricultural press should endeavor to create a sentiment which will make it impossible to delay the work of eradication by appeal to the courts.

And this work of eradication will be delayed by injunction or otherwise unless the Government is prepared to pay the whole value of the animals which it sacrifices for the public welfare. There will be little difficulty in determining the full value of feeding cattle or of the ordinary dairy and young stock on the farm. There will be difficulty in determining the full value of pure-bred herds; but this can safely be left to a committee of three, one representing the Bureau of Animal Industry, one the State authorities, and the other the owner of the herd. It would have been better for the whole live-stock industry and the community at large if they had paid two or

even three times the actual value of the animals rather than have the work delayed by injunction or otherwise.

It is also of great importance that an emergency fund be created, both in the Bureau of Animal Industry and the various State governments, to be used only on an outbreak of the disease. Farmers are often not willing to take the promise to pay by legislative enactment. They would be much more willing to see their herds sacrificed if they knew the money was in the Treasury and could be paid on the spot.

It may cost the agricultural paper something and sometimes a good deal to take this stand in favor of the enforcement of law and of the regulations of the departments of State and Nation. It may have subscribers and advertisers who feel that this attitude tends to involve them in great financial loss, and often at a time when there is little or no profit in the business of growing hogs or feeding cattle. If, however, the paper has been so conducted as to win the confidence of the subscriber and the advertiser in the honesty, integrity, and ability of its management, and if the subject is dealt with in a sympathetic way and in view of the effect on the entire community, the correctness of its course will be in time vindicated. First, last, and all the time an agricultural paper, to succeed, must be conducted in the interest of the farm folk as a whole and not of particular individuals or classes of individuals.

While the agricultural press, as I have said, should stand squarely for the policy of eradicating this disease, and should support firmly the authorities who have this work in charge, it should insist, once we have this outbreak stamped out, that there be a very thorough cleaning out of the incompetents in both Federal and State veterinary departments. It should insist further that methods shall be perfected now that will enable the authorities, in case of future outbreaks, to handle them more vigorously and with less inconvenience and loss to those whose cattle are healthy. A quarantine system should be devised which will make it unnecessary to take in such large areas, and which will make it possible to enforce a real quarantine about the infected farms. We should oppose any effort to fix by law the size of quarantine areas. In some cases a satisfactory quarantine could be established about the farm on which the disease exists. In other cases it would be necessary to quarantine for a radius of 3 to 5 miles about the place; while under still other conditions, a much larger area would be necessary to avoid the chance of the disease getting away. This is a matter which can best be determined by veterinary authorities. The agricultural press should endeavor to create a sentiment in the country which will result in the people of the community cooperating with the authorities in making such quarantine really effective. We must try to bring about a feeling of confidence between the veterinarians and the farmers and stockmen, and wipe out the feeling of antagonism which existed in so many places, and which added so much to the difficulties of the work during the past outbreak.

The agricultural press is neither infallible nor omniscient, nor free from bias or prejudice. The most it can do is to keep an open mind on questions of this sort, and publish with courage what it believes to be the truth, having taken the utmost pains to ascertain the facts, the exact truth. [Applause.]

DISCUSSION.

Mr. VROOMAN. We shall be glad to hear from anyone who desires to speak on this subject of the agricultural press.

Mr. HORINE. It seems to me that the one purpose of this meeting, which is a campaign of education, would fail, almost, without the unanimous support of the agricultural press. There are two factors in this country that can do the most in the defense of the live-stock industry in such epidemics as this country has passed through this year and last year. These are, in the main, the country bankers and the editors of the agricultural press. If these men at the head of the banks and the local agricultural papers can grasp the significance of the situation and lend their help, a campaign of education can be instituted that will accomplish what the Department of Agriculture and their representatives are attempting to accomplish. Without that help the results are well nigh impossible. Whatever can be directed, then, to the editors of the agricultural and local press that will help them in the work of pushing this campaign of education will be of the most value to the entire industry of the Nation, and those who can help by offering facts, figures, or suggestions or advice of any kind that may be useful should not hesitate to do so.

The Union Stock Yards & Transit Co., of Chicago, has realized the fact that a campaign of education is vitally necessary in order that authorities may accomplish their work, and we have put out over the country over 300,000 pieces of mail matter for that purpose.

Mr. SNYDER. I believe in publicity. When the cards were dealt I drew the editorship of the Farmer's Review. I want to say that we have insisted most persistently that this foot-and-mouth disease be cleaned up. We have realized that our only dependence in this country to clean it up has been the veterinarian. So long as they have been fighting our fight, we shall stand by them. When the job is done, if there is incompetence shown, we shall be as ready as any to condemn it. I happened into Dr. Jenison's office one day a few weeks ago, and I said to Dr. Jenison: "I am going down State. The farmers are going to ask me about the quarantine regulations you have been imposing. What am I going to tell them for you?" He saw my point and got out his map and showed me step by step what the Federal officers had done, and he had a logical reason for everything they had done. I grew enthusiastic, and I said, "Dr. Jenison, why don't you Federal people go out and tell the farmers of Illinois exactly what you have told me here to-day?" If the Department of Agriculture could have seen its way to do that, to do more than make regulations—to explain them—I am sure that this conference would not be held here to-day.

Mr. McLEAN. In connection with what the last speaker has said, I want to mention an instance in our experience. This infection started with us when the hog serum was used, and spread very rapidly in certain parts of our county. Parts of our county adopted drastic means of themselves for quarantine purposes. Other parts were not so good, and the infection spread more rapidly. It had been confined practically to the northern portion of our county, but it got to such proportions that we called a meeting of the local bankers of our county and appointed a committee to work with the

authorities at Washington. When we got there we were received by Dr. Melvin in the finest possible way. They took pains to explain patiently to us why McDonough County was not the only county on the map, and they had some good reasons. We were objecting seriously to the county quarantine. I still believe that they might be modified somewhat, but in talking with Dr. Melvin and his associates, they conceded a great many arguments we offered, and finally, as a partial release, they told us that we could ship from the 8 uninfected townships on condition that we should not ship out of the State, because, as they stated, no other quarantine officer would allow that, and we could not go through any public stockyard. In other words, they showed us they were there to help us as much as they could without running the risk of spreading that infection farther. Up to the present time we have been unable to have the packers take our goods; we hope we can before we get through. After all the courtesy extended by the department, they even went further. They have been calling meetings all through our county, and their men have been talking to the quarantine officers, and I believe it has done more good than anything we had down there in dissipating prejudice against quarantine. [Applause.]

Mr. BAYARD. I am in hearty accord with everything Mr. Wallace said. I found in my editorial duties I was going to have to say something about foot-and-mouth disease. I had been through the 1908 outbreak and knew the policy in that outbreak. But I wanted to know more about it, so I went and got on a rubber suit, and the boys gave me a degree of Ph. D., or D. Ph., or something, and I went out to help kill these cattle and get some experience. Well, I got all I wanted. Gentlemen, foot-and-mouth disease is war, and you know what war is. I refer you to the late Gen. Sherman. I helped to kill quite a few cattle. I got some experience that way, and I thought I knew something about it. Mr. Wallace referred a while ago to something that struck us very strongly. We lost thousands of dollars in advertising; more perhaps than the others, because they were not in the heart of the outbreak as we were. We couldn't ship from Pennsylvania into Virginia. Our live-stock advertising went down. There was very strong pressure brought to bear, not only by advertisers but by subscribers, to back up on this question and go the other way. But, gentlemen, it doesn't pay for any man who is a man to back up when he knows he is right. In the first place, it is wrong; in the next place, it is not going to pay. Thousands of cattle in Ohio had to come to market. Lots of breeders had to ship across State lines, and I think Dr. Melvin will assure you that I tried to do my best to get them to ship across State lines. Selfish, as we all are in this thing, I thought at one time I was going to get this stock across the State line, and just about that time a case of foot-and-mouth disease came into the Pittsburgh market by express and knocked me into a cocked hat. They all "cussed" me; my readers cussed; and I got enough letters cussing me to bed a mule. The more I came in contact with these veterinarians and asked them, and went to them in the right spirit, the more I saw that they had a good reason for the things they were doing. And I believe if all of us, instead of standing away off and cussing the veterinarians, would go to them in the right spirit and ask them why

thus and so, why these regulations, that we would be more patient with such things as quarantines and restrictions. I know we had lots of them, and at first I thought too many of them; but there seemed to be a good reason for all of them. The real problem is not to get rid of quarantines and restrictions right away, but to get rid of the disease right away; then you will get rid of your restrictions. I appeal to all of you, editors, common folks, whatever you are, to try to find out the facts and the truth about this matter and the reason for these quarantines and understand them, and you will have more patience with those who are dealing with them. [Applause.]

Mr. GREGORY. When the disease broke out here in Illinois a little over a year ago the sentiment among our farmers was very pronounced against the entire policy of killing cattle. It was a new thing. The farmers could hardly believe that the Federal Department of Agriculture or the State live-stock commission would kill valuable cattle by the hundreds, by the thousands, and bury them. They couldn't understand it. They couldn't realize that such a thing could possibly be necessary—that that was the only way to control the disease. We have a great many foreign farmers, especially in the territory that was first infected. As Mr. Wallace has told you, they told a great many stories about the prevalence of the disease in Germany and other foreign countries, and their word was accepted and believed by their neighbors. They said the disease wasn't serious, that it was about like pink eye, and their neighbors believed them. At the time the first work of eradication started, I don't believe that in the infected districts there was one farmer out of ten who would support the policy of the Government, who believed that the slaughter policy was necessary. And I firmly believe at this time that if it had not been that the farm papers in this section circulating among these farmers had unanimously backed up the Government and the State in this slaughter policy—I don't believe they could have made that work successful, because they would have met with united opposition. It took a good deal of explaining, a good deal of a kind of explaining that the veterinary inspectors did not have to do, and that a good many of them did not have the tact nor the diplomacy to do, to induce these farmers to keep their hands off. The farm papers in this territory have been unanimous in upholding the slaughter policy of the bureau and of the live-stock commission, and I believe that their work in upholding that policy has been one of the principal factors in gaining the local cooperation that is absolutely essential in controlling this disease.

Another important thing that the farm papers in this territory have done has been the encouragement of local organizations. The community in Illinois that was most successful in getting rid of foot-and-mouth disease was Sugar Grove Township, in Kane County, where the people got together and enforced quarantines of their own five times as strict as the Federal officials or State officials could possibly enforce. These farmers barred up the roads. They didn't care what the law was. They had no authority from law to hire guards, to put them around these farms, but they did it. They didn't stop for law or authority. They did things that the State and Government said they didn't have authority to do. The farm papers encouraged this, told what the people in that township and in other localities were doing, and were instrumental in encouraging farmers

in other localities to do the same thing to bring about the degree of local cooperation necessary to control this disease.

There has been some criticism of State and Federal authorities on the part of papers here. I do not entirely agree with some of the speakers who say that all criticism should be suspended until after the disease is entirely cleaned up. I am satisfied in my own mind that it would have been a mistaken policy on the part of a farm paper in this Territory to back up everything done by State and Federal authorities. I am satisfied that it would have been a mistaken policy to have told our readers, our farmers, that everything done by State and Federal men was right simply because they were sanitary authorities, educated veterinarians, when we knew absolutely that a great many things they did were not right. Had we put ourselves in that position we would have been taken among our intelligent readers as simply mouthpieces of the veterinarians, of the authorities. Our influence, our standing among farmers, would have been greatly injured by that, because the farmers would have known absolutely that we were not telling the truth. One function of any kind of a paper is to tell the news, to tell all the truth; and in following that policy, in pointing out at the time some of the mistakes that were being made, we gained the confidence of farmers much more than if we had covered up those things. It encouraged our readers to believe that we were telling the truth when we told them that the way to conquer this disease was to kill and bury the cattle. When we told them of the mistakes that had been made, were unsparing in our condemnations of the officials who made those mistakes, the farmers believed much more readily that we were telling the truth when we told them they must back up the officials to the limit in killing, slaughtering, and quarantining.

For that reason I believe that a certain amount of criticism at the time criticism is due is worth ten times as much as it is after the thing is over. Criticism is much more effective at such a time. And while, as I say, the Prairie Farmer has been at times severe in its criticism, I have no apologies to make for that criticism. I believed at the time, and still believe, that the criticism made was just, that it was necessary, that there was a place for it at that time, that it did a good deal of good, and that the good we were able to do in backing up the policy of eradicating the disease was greater, that we attained the victory much more thoroughly by telling the whole truth. I believe that should be done at all times. I think that is the primary function of a public organ, of a paper that comes to the ear of the public, to bring out those things, telling the whole truth, telling the truth about quarantines that are unscientific, that are not based on common sense. You can't go out and explain to a farmer that a man 3 miles from the State or county line should be absolutely tied up, while a man the other side of the State line should be free. You can't tell him that that is based on common sense. You can't defend the action of authorities in defending that kind of a quarantine. It doesn't pay to try. If you try it the readers won't believe anything you say. Criticize where criticism is due, and the end will be gained a good deal quicker, and the purpose of all of us—getting rid of this disease—will be gained, not by covering up everything, not by covering up anything, but by thrashing these things out in public; and when I say "in public" I don't mean in a gathering of this kind,

which is only a small part of the public, but by printing those things, letting farmers discuss them. Our farmers are intelligent; we don't need to keep the truth from them. If the whole situation is placed before them their decision will be all right, and I believe the right policy for a farm paper to pursue is to put the whole truth before its readers, all the information that the resources of that publication can get, and let them judge for themselves.

Mr. LISPIE. I happened to be one of the fortunates or unfortunates quarantined in that first outbreak. The Federal men, and also the State men, acted the perfect gentlemen all the way through. I think the farmers have been unjustly criticized by persons who did not know all about it. My hogs were vaccinated two weeks before with Chicago serum. It was all over the county that my stock were vaccinated with this serum. This place was about 2 miles from where I lived. I saw these hogs had a very severe case of the cholera. I had 2 calves, 2 sows, and 65 head of fall shoats. I was on the place every day until quarantined, and when they found it and decided it was foot-and-mouth disease they quarantined the premises. I said, "That is peculiar. Why, these hogs are all getting better." Our State veterinarian said, "You are quarantined," and I said "All right. I will abide by the quarantine. I am quarantined, all right." It was three or four weeks before they came and killed that stuff and disinfected the place, and we maintained a quarantine as much as we possibly could. My man never went off the farm, and I never went on the farm. Of course, the roads were not shut up. But the thing that I could not understand is that if this foot-and-mouth disease is so awfully contagious, why I did not carry that disease home? It is a hard proposition for us farmers to understand that. Even after we were quarantined, I condemned the Federal people for not coming and doing this work. I raised a racket with the assistant State veterinarian at the time, and he said "I can not get the Federal men. They are too busy." It was two weeks before they killed the stuff, and another two weeks before they got the place disinfected. How can you blame the farmer under these conditions for kicking about them? I think the Federal men have treated me fine and have done all that could be done, and our assistant State veterinarian did all that could be done, and maybe I didn't do the thing just right. I did all that the law said. It was a kind of a bitter pill. The directions said take it, and I took it. [Applause.]

Mr. D. A. WALLACE. I would like to say a word about a little experience we have had in Minnesota. I believe that in that experience there is a suggestion to this conference. Some of you know that Minnesota has been the pioneer in live-stock sanitary work and has had a very efficient sanitary corps for some 11 or 12 years. We have had a little experience with infectious diseases in Minnesota, especially tuberculosis, glanders, and other infectious diseases; and on looking over the report of our sanitary board I was surprised that over 90 per cent of our pure-bred cattle are free from tuberculosis. Glanders has practically been eliminated, although we previously had a lot of it. As you know, Minnesota was surrounded by States which were infected with foot-and-mouth disease. A carload of foot-and-mouth disease cattle came across the State, and the disease came very close to the borders of the State at that time; but we had no infection until last August, when a shipment of serum came into

the southern part of Minnesota and was supposed to infect a herd in Dodge County. It is this experience in Dodge County which I would like to state to this audience. When this outbreak occurred, the cooperation between the State officials and the farmers was perfect, and in all of our experience I have never heard one complaint from the farmers about the work of the veterinarians, either State or Federal. In fact, it was the most thorough sort of cooperation, and they assisted the State in every possible way. We are proud to say that that outbreak of foot-and-mouth disease was confined to the original farm where the outbreak occurred, and I believe I am safe in saying that this is the only case on record of its kind, confining the outbreak to the original farm; and we are proud of that record. We must have cooperation when we have an infectious disease of this sort, and we feel from our experiences in Minnesota that with the same sort of cooperation we had last August we will be in a position where we do not have to fear foot-and-mouth disease or any other thing.

Mr. HULL. It had been my intention to attend this meeting simply as a listener. I heard a few remarks that I want to reply to. I don't want to tell you all I know of the foot-and-mouth disease, because I am afraid you would throw me out of the meeting. Unfortunately I was elected to Congress on the 3d of November. On the 4th of November I found myself in what was supposed to be a quarantine for foot-and-mouth disease, and I remained in quarantine for seven months. Now, I am a law-abiding citizen, and I want those who enforce the law to be law-abiding themselves. I don't know whether Mr. Wallace in his paper referred to me, but he hit the nail on the head, and I take this means of replying to one of his remarks. He said that politicians took up a great deal of their time in going to the legislature and inciting the farmers to agitation. I was elected to represent the second district of the State of Iowa. I don't know whether I have done it properly or not, but I have tried to do it. I was within a mile of the so-called first case in Iowa County, and I had a very good opportunity of observing the methods that they took to stamp out the disease. My whole attitude for several weeks was to advise the farmers to obey the State authorities. I never changed that attitude all through the lamentable experience that the second congressional district underwent. I found that instead of stamping the disease out the methods they pursued were spreading the disease. I went to the veterinarians and practically on my knees asked them to change their methods, and I was not the only one, but we got nothing as a result. I looked up the law, and, gentlemen, it is worth your while to know that you live under a dual form of government and there is no law for a State quarantine except the State law. The rules of the Bureau of Animal Industry do not constitute a law. The rules that were enforced upon the people of the second congressional district of Iowa resulted in my people losing \$250,000 worth of cholera hogs. I thought that they were entitled to be paid for them as well as the man who had his herd slaughtered. They were not allowed to sell these hogs, although ready and fit to be sold.

I went to the legislature and tried to induce the legislature to make some provision for that. Then I went to the executive council, which is the real power in the State of Iowa behind the quarantine,

and I found there that they were operating, or should have been operating, under a law passed, I think, four years ago, and that law is still on the statute books of the State of Iowa and has never been enforced as far as quarantine matters are concerned. I contended that that law should be the one that we should operate under, but they were enforcing something radically different. They said "This law is indefinite," and to some extent I admitted it, and said, "Gentlemen, we should have a definite law," and the legislature said, "That is what we want." I went before the executive council and the senate and house committees and debated the thing and asked them to draw up a law. There are no politics in the second district. Every man that was a representative in the house or senate, Democrat as well as Republican, stood solidly behind me. This morning you heard the Democratic senator from my county talk, and he is with me, and I am with him, although I am a Republican. Before going to the legislature I went to Washington to the Department of Agriculture and talked with the highest authorities I could get to and showed them the proposed bill, and they found no objection to it. I went back home and laid it down to the senate committee, and Senator Doran wrote to the Secretary of Agriculture and inclosed the bill, and the only objection coming back was that it should be 3 miles instead of 1. It was changed to conform to that standard. That bill was passed, as the senator has said this morning, by a practically unanimous vote. I think there were nine votes in both houses against it. After it was passed it was vetoed by the governor because the veterinary department of the State of Iowa objected to the bill. And to-day you have a law on your statute books that no man knows anything about. If we should be so unfortunate as to have an outbreak of foot-and-mouth disease to-morrow, I venture the assertion that there would be an injunction at once on the officers enforcing the law, and I call your attention to the fact that in all that lamentable experience there was not an injunction served in the State of Iowa. We went through it and took our losses and don't like to be called not law-abiding. [Applause.]

Mr. MUNN. I wish to emphasize what was said by Mr. Wallace, of Minnesota. If those who are interested in the enforcement of these quarantine regulations would let the people understand the reason why and the nature of such enforcement, as Dr. Ward, of Minnesota, always does, these men would have less trouble. We have splendid cooperation in Minnesota. Mr. Wallace says our pure-bred herds are almost free of tuberculosis. It is because we trust the man in charge. He is efficient and competent, and it is because we have given him the sole supervision of our pure-bred herds. I know I have, and for the last eight years he has inspected my herd and given me a certificate. It has been suggested here that the breeders do not cooperate with the veterinarians. Of course, cooperation means not the obedience, on one side, without suggestion, to what is demanded or required on the other; it means the getting together and agreeing upon the application of the law and submitting to it and aiding in its enforcement; and it has been suggested that these breeders did not do that.

I want to put a letter in the record for the purpose of showing just what the attitude of the breeders is. This is a letter written to

the president of the Illinois State Live Stock Commission by the secretary of the National Dairy Council. This is not a representative body of dairymen, but a representative body of all breeders. When this second outbreak came the secretary of the association, acting for all these breeders, called upon the officials of Illinois and offered the services of this association and its influence in carrying out the quarantine necessary to eradicate the disease and to bring about cooperation between the breeders and the officials.

CHICAGO, October 7, 1915.

HON. B. J. SHANLEY,

*Chairman State Board of Live Stock Commissioners,
State Building, 130 North Fifth Avenue, Chicago, Ill.*

MY DEAR SIR: Following our conversation of last Monday evening on the subject of your lack of finance for the board to forward as strong a campaign for the eradication of foot-and-mouth disease as they would like to, I desire to correct a statement that I made to you at that time, that Mr. J. K. Dering some three weeks ago had proffered to Mr. Patterson and Dr. Brown the help of the cattlemen to your board for a forceful eradication campaign of the disease. I should have said Mr. Patterson and Dr. Dyson.

As outlined to you on Monday, we will be very glad to bring together the live-stock breeders of each county wherein the disease exists, and have them organize a cordon of guards to enforce quarantine or such other work as your board may want them to perform under your direction. It is not necessary to discuss detail in this communication, as that can be gone over if you feel disposed to utilize this character of help in the work. The question of police power to be given these men can be discussed also when you are ready.

I would draw your attention particularly to the value of an organization of this kind coming from the breeders whose investment in live stock is permanent. They are engaged in a line of business which they are unable to unload at a moment's notice upon the public market, and very naturally would be keener than a commercial cattleman to safeguard every possible avenue of chance of infection to their herds and flocks; and, as their labor would be of personal interest, the question of your financial condition would be of no moment.

As I gave you a copy of our pamphlet on the subject of the disease, and showed you other literature we are getting out, I am sure you must realize that the breeders who are members of the organization have a deep and abiding interest in prompt and permanent eradication of this disease.

Will be glad to have you take up this question at your own convenience.

Yours, very truly,

W. E. SKINNER, *Secretary.*

This same organization sent out 50,000 copies to breeders informing them of the importance of communicating at once with the authorities in charge when anything suspicious appeared. I put this in the record for the purpose of showing that the breeders are not antagonistic, but are willing to cooperate.

A MEMBER. You spoke of your methods of handling tuberculosis in your State. Will you please state what they are?

Mr. MUNN. Dr. Ward is here and can tell you better than I can.

Dr. WARD. We have a statute in Minnesota which requires the breeder to give to the purchaser a certificate of health for every pure-bred animal which is sold, which certificate of health is good for one year. The result has been that the majority of the breeders have their herds tested annually, and certificates of health are issued for anything which they may desire to sell within that period of time. This statute was enacted at a meeting of the legislature about six or seven years ago, when a commission was appointed to inquire into the test, and it was shown that tuberculosis was spread through the

pure-bred cattle and that farmers had frequently found pure-bred cattle infected with tuberculosis and in that way disease spread. It was thought that a statute of that kind would assist materially in controlling the disease.

Mr. SWIFT. Everybody here is trying to hide behind the law. In other words, there is nobody but what has been in favor of the enforcement of the law. There must be some little fire somewhere to have caused the smoke, and let me tell you something of what that fire is and why it is. Surrounding the city of Chicago, furnishing milk to this city, are 60,000 farms. Of that number 65 per cent are tenant farms. Of that 65 per cent of tenant farmers 80 per cent are foreigners. A great many of them have come from foreign countries where this disease has been prevalent. A dairy herd is not an article of commodity. It is not the thing that the man buys and sells. It is his tool of trade. It is the hammer that he holds in his hand that drives the nail. In other words, the dairy cow is the means by which the dairyman makes a living. He makes a living by the work of himself, his wife, and his children from 4 o'clock in the morning to 9 o'clock at night, and it is a poor living, too. He sees the tools of his trade confiscated under his nose. He asks where the money is coming from. Do you wonder he asks it? I don't. I have been in sympathy with that foreign neighbor of mine and with his wife and his children ever since the day the cattle were taken off his farm and his occupation taken away from him. He has no occupation. The Government of the United States paid him a little money—half of the value of his cattle. He had nothing to do. They went to town. The children had no work. Pretty soon that money was spent. The State didn't pay him; hasn't paid him yet; will pay him, I think, in time. But in the meantime he is living and he is going into debt, and he has nothing to pay the bills with. When he gets that money from the State it is used to pay his bills. He has no more tools to go forward with his occupation. Do you wonder that he objects to the tools being confiscated, and that he hides that disease just as long as he can? What is the remedy? The remedy is that when those cattle are taken the money is there to pay for them, their full value, and that he may understand that within a reasonable time he can go forward with his employment; that he and his wife and children can again go to work with the tools of trade.

Mr. VROOMAN. That is a very excellent suggestion, and I hope we shall be able to carry it out. If Dr. Kiernan is here I should like to hear from him.

Dr. KIERNAN. I wish to concur in and reiterate the sentiment expressed that every veterinarian and every inspector who has taken a part in the eradication of foot-and-mouth disease wishes to cooperate. For I see very plainly, not only in the eradication of foot-and-mouth disease and other diseases of live stock, but in every pursuit of life where the public is involved, that cooperation is absolutely necessary for success. Without the cooperation of the farmers and business men and bankers and citizens the work of eradicating foot-and-mouth disease would be drawn out to great length. With their cooperation, the disease can be quickly checked and soon eradicated.

It has been my good fortune only for the past three weeks to be associated with the farmers and the State officials in McDonough

County, Ill., in the eradication of this disease. McDonough County has probably suffered as much if not more from the disease than any community of its size in the United States. In all there have been about 200 herds destroyed on 168 premises in that comparatively small county. Everybody is interested to know how this disease has been spread so widely. To that end an investigation was made for two weeks, and I have some data that will give some enlightenment on the subject. This information was obtained by bureau inspectors directly from the farmers and of the herds which were destroyed. They were questioned as to all the information they had as to how the disease reached their herds, and their answers were put down in memorandum books and later compiled.

There are in McDonough County 11 townships. In Blandinsville Township there were but 2 infected herds, in Bushnell 26, in Macomb 26, and in Walnut Grove 37; a total of 162 premises in McDonough, and 6 premises in the adjoining county of Fulton. Of these 35 herds were destroyed on account of the infection being spread by the close community of the herds, as we have termed it—where there was simply a wire fence between the herds. Forty-eight cases were carried by the visiting of farmers and in the exchange of work. Thirty-three cases were carried by dogs. Twelve cases were carried by thrashing crews. Four cases were carried by nut gatherers. Thirteen were probably carried by chickens, turkeys, and birds. Four were probably carried by contaminated streams; 2 by contaminated hog-cholera serum; 2 probably by cats. The manner in which the disease was carried in 9 cases is unknown.

As one of the speakers has said, the disease is most frequently spread before the affected case is found. In order to combat this disease it is absolutely necessary to check the spreading of the infection; and if 48 farmers spread the disease around to 48 farms, isn't it absolutely necessary to obtain their cooperation by remaining at home if we are ever going to get through with the disease at all? If 33 cases are spread by dogs, isn't it absolutely necessary that all dogs be kept at home, be confined, or chained so that they can not go out?

In seeking the cooperation of the people, we thought of holding some meetings in the district where the infection was great, but outside of the infected area. We considered the danger of the spread of the infection by gathering the farmers together at meetings, but the benefits to be derived from their cooperation seemed to more than outweigh the danger incident to gathering them together. In a period of two weeks 15 meetings were held in McDonough and Fulton Counties. In all there were 3,000 farmers present. At the meeting at Macomb we had as large a gathering as there is here to-day. After explaining to those present the nature of the disease and the manner in which it is spread, the meeting was thrown open to the farmers, and we answered questions. At each meeting we provided a large washtub that contained about 3 inches of bichlorid of mercury solution, 1 to 500, and we asked them as a manifestation of their cooperation that before leaving the meeting hall each person dip his soles into that bichlorid solution. At every meeting we had splendid cooperation. Numerous questions were asked, and we answered them to the best of our ability. We told them frankly and freely that we

did not possess all the information regarding foot-and-mouth disease; that we could not explain to them the exact virus or bacteria or organism that was carrying the disease, but we knew that it was of an infectious nature, and that it spread rapidly; and that seemed to satisfy those present. Up to the present time we have no knowledge of any disease having been carried away from any of those meetings; and further, it is very gratifying to know that up to the present time no new cases have appeared in either one of those counties outside of those radii where the disease existed at that time. The farmers are cooperating. They are staying at home, and to a large extent they are keeping their dogs there.

At the outset of the disease, as I am told, requests were made upon the board of supervisors and the sheriff of that county to cooperate. The sheriff stated that he was willing to do his duty providing the county or the State would pay him his fees. Up to the present time no such arrangement has been made. But I believe that if McDonough County should be so unfortunate as to be afflicted again with foot-and-mouth disease the State would obtain the hearty cooperation of all its people. It is up to us, State and Federal forces, to inform the public fully regarding the nature of the disease that we are attacking.

In the work in which I am regularly employed, the eradication of the cattle tick, there was a great deal of misunderstanding several years ago. We had regulations in order to eradicate the ticks, and we made feeble efforts to get the cooperation of local authorities and State authorities; but when our efforts were directed to put the work into operation in the country we found that the farmers did not understand what we were trying to do. And then we started at the other end. We went out into the country and worked back to the city, to the supervisors and the board of county commissioners; and we found that when the people were apprised of the ideas and the methods that we were going to employ, and were fully informed of the objects of our work, we obtained their hearty cooperation. And in our territory now, instead of meeting with the opposition of the farmers, when the matter of tick eradication is put to the vote of the people, as it has been in a number of States this year, and particularly in Alabama counties, it is frequently carried by more than 10 to 1.

It is true that many mistakes have been made, but they have not all been made on the part of the inspectors. Everyone—the farmers, the railroads, possibly the stockyards, and perhaps the breeders, too—has made mistakes. And it is the object of this conference that we might get together in a friendly way to suggest changes that can be made for the benefit of the Nation at large, so that if again perchance we are so unfortunate as to have a foreign infectious disease such as foot-and-mouth disease invade our shores we will be in a position to combat it and defeat it. And after this conference is over there is no doubt that State officials and Government officials will get together and frame up regulations that will be ready to be put in force that will govern the campaign of eradication next time.

Much has been said about the extent of the area that should be quarantined. I have here a map of McDonough County, on which I have drawn in circles a five-mile radius around the infected farms. I

didn't put down the 200 farms, but I put down the farthest east and farthest north, the farthest southwest and the farthest west. If at the outset of the foot-and-mouth disease in McDonough County the policy had been to quarantine only a five-mile radius the circles show that up to the present time all of the county would be in a quarantine with the exception of two townships down in the southeastern part. Now, if, instead of placing the entire county in quarantine, the quarantine were confined to the 5-mile radius and animals were permitted to move promiscuously around the county there is a strong probability that from this area that to-day was supposed to be free and to-morrow found diseased, animals would have been moved into surrounding counties, and instead of the quarantine being restricted to the confines of McDonough County we would have had several counties in quarantine.

Another feature that I want to take up is the slaughtering of animals in the quarantined areas so as to save the meat. I believe that a great deal can be done in this way in handling fat hogs and perhaps fat steers. When the bankers' committee of McDonough County went to Washington and conferred with the department officials they were advised and it was recommended that if arrangements could be made in the quarantined area for the construction of little shacks and trenches dug so the offal could be deposited in them many hogs and cattle could be slaughtered and the meat shipped off to the packing houses or to Water Street or some of the retail markets, provided that the farmers could find their own markets. Ten or twelve days ago the quarantine on McDonough County was modified so that part of the western half of the county and part of the southern tier of townships were placed in the "exposed" area, and the regulations permit the shipment of hogs to slaughtering establishments where Federal inspection was maintained and where they had trackage direct to those slaughterhouses. The regulations provided that the hogs should be inspected and certified to, and to that end inspectors were placed around at the different stations so that they might aid in the shipping out of these hogs. A tentative arrangement was made with one packing house, but when everything was ready to start the hogs to market, for some reason unknown to me, operations were suspended and that house refused to take the hogs, probably because there was such a large influx of hogs to the market at that time. But at the present time a packing house at Peoria is aiding in a small way, probably to the best of their ability, in marketing a few hogs from that section. But there are yet people in that exposed section of the county who have fat cattle ready to go to market, and it would be a great manifestation of cooperation if some of the packing houses who have facilities for handling fat cattle and fat hogs would assist the farmers in getting the market, as they are Christmas cattle and are ready to go now.

Mr. FARLOW. I am tied to McDonough County. No set of men could have brought more destruction upon any set of people than the assistant State veterinarians of the State of Illinois have brought upon McDonough and Hancock Counties. I am here with two loads of cattle that should have been brought here 90 days ago. This set of veterinarians spread this disease, notwithstanding what Dr. Kieran has said. I have traded throughout this country and know, and

there was no contamination. Go down to that county and you will find 80 men on the pay roll that this State has to pay, where there is not need for a dozen. The cattlemen will get along if you take half of the veterinarians away and the cattlemen can bring in the proper help. There were 7 or 8 cases passed by Dr. Pfeffer, and he said it was mycotic stomatitis. I have been a drover since I was a boy. I believe it has cost the State of Illinois \$20,000,000. We have been forced to sit there in Augusta Township, of Hancock County, 5 miles away from any infection, and hold our stock away from market. I consulted a veterinarian and he charged me \$10, and he did not know anything about a sick hog. The inspection is a farce. I took Dr. Pfeffer around in my car on the 2d of November. He did not ask me to disinfect. He took me for the purpose of carrying the disease, I suppose. Dr. Kiernan's remarks have been made to mold sentiment. Anybody knows that this is not a contagious disease, but has been made so for the purpose of putting a lot of men on the pay roll for the State of Illinois to have to pay. I looked at Mr. Joseph Wiley's cattle in McDonough County and then went among my cattle, and the next week they killed them. They did that the day they killed Wiley's pure-bred herd. They did not do any disinfection. Half of the township stood there, and went to their homes, and there was no contamination. This disease is magnified for the purpose of putting a lot of young veterinarians on the pay roll of our State that we are to be taxed for. [Applause.]

Mr. NEWMAN. I thought I had spoken all at this meeting that I was entitled to say, but the gentleman who has just made a speech has absolutely convinced me that my statement yesterday morning was right; and the gentlemen who applauded in this audience have convinced me that I was right when I said that nothing in the State of Illinois would come into Kentucky until every hoof of every animal infected with the disease is buried here in Illinois. [Applause.] When Illinois cattle are dead—when you pursue the policy indicated here, and the cattle, hogs, sheep, and goats of Illinois are all gone, we will have some good stock to sell you people to start over again with.

Mr. Chairman, we recognize full well in Kentucky that your department at Washington only has the power to quarantine the State of Kentucky. I, as chairman of the live-stock sanitary board, had power to quarantine any county or any section of a county; but knowing full well that we must cooperate with you in order to eradicate the disease, we said to your men, "Come with us, and what is good for you is good for us, and if you want to make it a 5-mile radius or a county territory we will do so." Somebody said a while ago that they had not been able to confine the disease to the farm where it originally broke out except in Minnesota. Of 11 counties in Kentucky where infection was introduced from the Chicago stock-yards, directly or indirectly, there were 6 of these counties in which the disease was kept on the farms on which it broke out, and nobody else in the county contracted it.

Kentucky is going to stop products from Illinois until you eradicate this disease, and the other States are going to do the same thing. I am in the deepest sympathy with the officials and live-stock owners of Illinois. I have lost more through this foot-and-mouth disease—and the people in Kentucky will tell you that I have—than any other

man here in this audience. It is utterly impossible to stamp out such a disease as long as men will talk over the country like the gentleman who has just preceded me. [Applause.] We are not safe in any part of the country as long as there is a diseased animal anywhere in the United States. There is not a day but that there is a request of me for some live stock to go from Illinois into Kentucky, and God knows I would be glad if they could come and come safely; but they can not come safely, because there is no living veterinarian that can tell where this disease is. I have seen it jump 25 miles in my own State without any apparent cause for it, and we can not trace it. I have heard it jumped in these other States 150 miles, simply from a man attending a funeral, where he had foot-and-mouth disease on his own farm and went to see a friend buried 150 miles away. We know we are not safe down there. We are here pleading with you gentlemen to realize the situation. You need to educate the people of this State to the fact that there is no method except exterminating the disease. There is no middle course. All this talk about salvage is nonsense. I would rather be guilty of killing 99 well herds in my State and take the chance on the Government and State paying for it than to let one infected herd escape. [Loud Applause.] You can not afford to take chances.

I state, furthermore, to the gentleman who talked a moment ago, that you have recently had brought to your county Dr. A. J. Payne, the Federal man who has been in charge of the work in Kentucky; and a more conservative, sensible, reasonable man does not live in these United States. [Applause.] Hear the stockyards men from Louisville cheering the statement that I make? He was with us in Kentucky when we eradicated sheep scab three years ago, and when we were quarantined, and when we eradicated foot-and-mouth disease; and we have not had a case over there since the 23d of March. He has come into your county, sir, to help you, and not for a job. Any time Dr. Payne wants a job he can get one in Kentucky, and not from the Federal Government either. He is sent there to save you from self-destruction [applause], and you won't listen to him. So long as there is an element in this State that will talk at the cross-roads or in meetings or go out and say that the effort to eradicate foot-and-mouth disease is for the purpose of giving some veterinarians positions, and that they are carrying this disease around to hold on to jobs, you are a dangerous neighbor. I do not want to quarrel with you. I am just trying to impress upon you the absolute necessity for cooperation on the part of everybody.

One point more. I hope to see the day when the Secretary of Agriculture at Washington will be able to remove the limit on the prices that are paid for cattle destroyed in the United States. Let us pay everybody what their cattle are worth, whether they be beef cattle, dairy cattle, purebreds, or what not. [Applause.] In my judgment, whenever the time comes when a man knows he is going to be paid for his cattle, either from the Federal or State Governments, there will not be any three weeks' time elapse from the time they were found until buried.

Do not imagine that I want to abuse Illinois; not so. But I want to impress upon you that the people that are free want to stay free; and I hope that you will soon be free and that we can resume business with you.

Mr. FARLOW. I think from his statements he has been sent here. I did not know who was here. I have heard that Dr. Dyson is here, but that does not make any difference. I think that gentleman was put in the audience to mold sentiment.

Mr. NEWMAN. I hope I can succeed, gentlemen. [Loud applause.]

Mr. VROOMAN. It is a perfectly legitimate matter to mold sentiment. It is just as important to have sane and sound ideas in the heads of the farmers as to eradicate pathological conditions from the bodies of the animals. We have discovered that where the farmers' minds are clear it is easy to eradicate this and other disease, and where they have wrong ideas it is impossible for any department or State sanitary board to eradicate animal disease. [Applause.]

The next paper is the paper which was to have been read yesterday by Dr. Balser, the assistant State veterinarian of Indiana, and his topic is, "In what particular respects is uniformity in Federal and State laws and regulations most essential for successful cooperation between the State and Federal agencies for control and eradication of foot-and-mouth disease, and how may such uniformity be most certainly attained?"

UNIFORMITY IN FEDERAL AND STATE LAWS AND REGULATIONS.

By Dr. F. A. BALSER,

Assistant State veterinarian of Indiana.

Dr. BALSER. In what particular respect is uniformity in Federal and State laws and regulations most essential for successful cooperation between the State and Federal agents for control and eradication of foot-and-mouth disease, and how may such uniformity be most certainly attained? The most essential thing in uniformity of Federal and State laws and regulations for successful cooperation is in the diplomatic enforcement of the same in every respect. Quarantine, slaughter of all exposed animals, cleaning and disinfecting premises, all must be executed quickly. Without uniformity it would be impossible to accomplish the things that are absolutely necessary in foot-and-mouth disease eradication. Without uniformity we can not expect the support of those who are interested.

The most essential points in foot-and-mouth eradication are the support of the press and the courts of the country, bankers, dairymen, stockmen, and professional gentlemen. Successful cooperation of Federal and State agencies can not accomplish all that is necessary without a uniformity and support by all concerned, and it is utterly impossible to enforce rules and regulations without a cooperative organization. The people must be enlightened and given a clear understanding of the trouble and a clear understanding of what it means for anyone in any way to obstruct enforcement of uniform rules and regulations. The press can do a great deal in bringing about cooperative organization and support; on the other hand, it can poison the minds of people who do not have a clear understanding as to the gravity of the situation.

The right of injunction can not be denied, but with uniformity of Federal and State laws and regulations, their enforcement in a diplomatic manner, and the organization of counties that are unfortu-

nate enough to have the trouble, the danger of injunction proceedings can be eliminated to a large degree. You will also have the support of the press, stockmen, and people generally. Uniformity also eliminates political and selfish interests. These two, next to the press, can be a very great handicap to eradication.

The laws in every State should be elastic enough to allow State officials to draft rules and regulations conforming to Federal rules and regulations. You can not favor a few. There can not be any personal privileges granted. Uniformity in our work will convince those who have opposed us in our efforts that we are honestly striving to eradicate foot-and-mouth disease from the United States.

In Indiana we have organized our counties where we had foot-and-mouth disease by calling meetings and inviting all county officials—auditor, sheriff, county commissioners, and county council. Stockmen, bankers, farmers, dairymen, and professional men were invited to attend. Our rules and regulations conformed to those of the Federal Government, which we would explain to all. All were invited to cooperate with us; all were given to understand what it meant to our State and Nation if we failed in our efforts. We asked the assistance of those who were forced to stand a financial loss because of enforcement of quarantine. We always enlisted support of the county press. We put the responsibility up to the people. By this cooperative work we were not compelled to make a single arrest in the State of Indiana for the violation of our rules and regulations. We had the support of the veterinary profession in Indiana to a man. We had the support of the live-stock exchange, of the commission men. We had the support of the live-stock organizations. We had the support of the State press, and State and county officials from the governor down. We had not only a uniformity of rules and regulations, but a uniformity of efforts in Indiana, for which we are thankful. Without a united and cooperative effort we could not have accomplished what we did. Our State and Federal men were always in harmony. If anyone strayed from our plan, he was at once notified to get in line. A united effort on the part of the Federal and State officials brought to us the support of practically the entire State of Indiana.

In support of cooperative work there was published in the Breeders' Gazette of this city, November 18, 1915, an article coming from the Live Stock Exchange National Bank of this city that was one of the most commendable communications that I have ever had the pleasure of reading. It was to the point. If every dairyman, stockman, and farmer could be made to understand the importance of cooperation with Federal and State officials, we would soon be free from foot-and-mouth disease. There was one sentence that I want to call your attention to:

There is no more important question before the agricultural interests of the United States to-day than whether the Federal and State authorities shall be upheld by the farmers, stockmen, and country bankers in their efforts to stamp out this disease, and they certainly will not receive all the cooperation they will need to accomplish their purpose unless there is a larger and better understanding of the situation by farmers, dairymen, and stock raisers generally.

Hence the most necessary thing in bringing about uniform enforcement of Federal and State laws, rules, and regulations is to educate the people. Heads of dairy associations, professional men, live-stock

organizations of every description, farmers, business men, the press, railroad corporations, all should be held responsible for the part they play in foot-and-mouth eradication. I know Federal and State men have appreciated their cooperation and given credit where credit belongs. If for personal interests they have obstructed enforcement of rules and regulations, they should be held responsible for their acts by the Nation.

DISCUSSION.

MR. VROOMAN. Does anyone care to discuss the paper which has just been read?

A MEMBER. I want to say a word on cooperation. I come from the State of Pennsylvania. Within two days after the outbreak of foot-and-mouth disease in the Pittsburgh stockyards, the executive committee of the Pennsylvania Berkshire Association held a meeting and decided it was necessary to get the fullest possible information of the disease and the methods of recognizing it, and that information along that line should be sent to every stockman. Within 10 days of that time that association sent out over 1,200 posters with a picture of an animal that had foot-and-mouth disease, describing the methods of recognizing it, and stating the importance of reporting to the local veterinarian as well as to the State authorities. A letter was sent to every member of the Berkshire association, and to stockmen, with the request that they give a list of small country post offices and stores in their neighborhood where these could be placed. In all 3,500 posters of that sort have been sent out. We have no foot-and-mouth disease. Every man within a very short time fell in with the plan of work laid out by the State veterinarian. We did have some earnest, honest, but misguided dealers who felt very much like the dealer who spoke here to-day. In the course of a short time, after they had been allowed to observe things in their neighborhoods, the sentiment entirely changed.

MR. H. E. WILLIAMS. I must confess that I am somewhat akin to Kentucky, coming from that Big Sandy River section down there, and the people who live along that Big Sandy River are somewhat all akin. I want to express my feelings in reference to the methods of cooperation. I am not a veterinarian. We occupied a very embarrassing position up until the month of March of this year. We were the dumping ground for the diseased animals and filth of every State in the Union. We had no live-stock sanitary law of any kind when foot-and-mouth disease broke out last summer a year ago. The governor issued a proclamation and the commissioner of agriculture issued a quarantine notice, under a very weak law that had been on the statute books in West Virginia for a number of years. It was purely a matter of bluff, for none of us had any authority if we had been brought into the courts to defend our rights. We succeeded admirably well until along about the latter part of January. At the establishment of this quarantine we sent out posters and circulars to every veterinarian, every justice of the peace, every constable, every postmaster, and every newspaper in West Virginia, calling attention to this dread disease and to its existence and to the danger of its coming into West Virginia, and asking them if they knew of any disease similar to the one described, where animals were affected with sore feet or sore mouths or showed anything of

that kind, to notify the department of agriculture by wire immediately.

Along about the latter part of January the foot-and-mouth disease broke out in Ohio County. We have not to this day learned its cause. Inside of 36 hours after it was discovered in a herd of dairy cows the herd was under the ground, notwithstanding that the owner was at that time visiting the exposition in San Francisco and we had to communicate with him by wire to have him appoint a representative. This was a pure-bred Guernsey herd, and a good one, too, being imported animals. A few days later foot-and-mouth disease was discovered in Berkeley County, which is in the eastern part of the State. We have no absolute knowledge of the source of infection there, but with the evidence that we have we are inclined to think that both of these outbreaks of disease came from a live-stock train passing through West Virginia from Chicago to Baltimore. The disease was 70 miles away from either of these outbreaks. We have been unable to find any positive source of infection. No persons traveled from that section of the country, and no animals were brought in. The owner of the herd in which the disease was discovered lived along the railroad track in a somewhat isolated section. He advertised a sale for a certain day. No one was called down to investigate it, because we knew of no disease within 70 miles of this place. The day of the sale, however, one of our veterinarians happened to be there. Along in the afternoon, when the sale was practically over, he discovered what he thought was foot-and-mouth disease. He wired me immediately. The next morning we had a veterinarian from Washington there to investigate—all done by wire. Inside of four days they were under the ground. This sale distributed these diseased animals to 14 farms. These animals had been driven over the public highways, through Berkeley County and on into the State of Virginia. When the disease spread, every man, woman, and child in that section of the country was placed under quarantine. Guards were stationed along the public highways, and a good many dogs were killed, and every cat that stuck its head out. All the birds and rats in that county that could be gotten hold of were destroyed. We had no injunction, and in 14 days the entire 14 herds were put in the ground. I speak of that in connection with your cooperation.

Dr. BUTLER. We in Montana have the distinction of being probably the only State where foot-and-mouth disease ever was on the open range. We are law-abiding citizens, or at least we think we are most of the time. But when we have a national calamity or a State calamity, we figure that the end justifies the means. We didn't go to the courts, and we didn't go to the attorney general and ask him if we had a right to do certain things; we went and did them. Although the disease was on the open range, it was stamped out inside of 30 days. It took a lot of hard work and a lot of riding. At one time the temperature was something like 30 below zero, yet the men worked hard. I envy those gentlemen who come from the States where they had no difficulties. When you are taking away property you have certain difficulties, but our difficulties were not very long lasting, and we got rid of them. Some speakers have talked of immediate compensation. Mr. Swift talked of the dairymen and of taking away their tools. I wonder if he realizes what the feeling

of the sanitarian is who has to go to that man's place and destroy his cattle for the good of the community. And I wonder if he thinks that the legislature and the stockmen treat the sanitarians right by not giving them an adequate appropriation.

In Montana we have a law, or a way of compensating people for animals destroyed, which I think no other State in the Union has. We have a direct tax on live stock not to exceed $1\frac{1}{2}$ mills, out of which we have a reserve fund of \$50,000, which can only be drawn upon when there is an emergency. Out of this $1\frac{1}{2}$ -mill tax we don't always ask for the limit; we simply ask for that portion which we think we will need. A mill and a half will bring us probably \$70,000 or \$80,000 at the present time. We pay a man immediately, and we pay him the full assessed valuation. Our assessors' list closes on the 1st of March, I think it is, and the man is supposed to turn in the full assessed valuation, not 50 per cent, not 70 per cent. And if he says his animals are worth \$60, or if he says his animals are worth \$200 or \$1,000, and if he is paying taxes on that amount, we pay him that amount. The stockmen pay that money themselves. They know the fickleness of a legislature and the uncertainty of politics, and they have said: "We will make a compulsory insurance to protect ourselves against infectious and contagious diseases. We will not ask the legislature to come and pay us this money." We also have a direct tax for the extermination of predatory animals—wolves and coyotes and the other ones—and we also have other direct taxes, the total amount of which shall not exceed 4 mills for all this work. It is $1\frac{1}{2}$ mills for the live-stock sanitary board, $1\frac{1}{2}$ mills to the bounty fund, $\frac{1}{2}$ mill to the board of stock commissioners, and $\frac{1}{2}$ mill to the board of sheep commissioners. I do not know how that may work in other States, but in Montana we regard it as a fair way to do business—to pay a man what he has said his stock is worth, and pay him immediately, and not wait for two months, or three months, or six months, or on the pleasure of the legislature, or whoever it may be.

Dr. NELSON. I hear statements, especially from Minnesota, about not having a secondary outbreak. In only 10 cases in Indiana was there secondary infection that spread to adjoining farms. In the original outbreak, the original lines, as drawn by Dr. John R. Mohler and myself, the officials at Washington thought were too small. There never was a case ever got out of that area, and had it not been for the shipments from the Chicago stockyards the outbreak would have been confined to the original area. One man that worked on an infected farm carried infection 18 miles.

Many things have been said here, but I, as a veterinarian, feel that there is no need to get up and defend the veterinary profession. But I do owe the veterinary profession in the State of Indiana a debt. We had 365 shipments of Chicago live stock scattered over the State of Indiana. Those cattle were scattered over 38 counties. We had no money, only our original little \$5,000 appropriation for all expenses. I notified the local veterinarians in each locality; in fact, expended about \$200 in telephone bills in one month. They visited these herds and revisited them. We and the Government men got to them as quickly as we could. All these inspectors realized that if a shipment had just arrived and he got the notice it was necessary for him to revisit those premises at least every two or three days for

a period of three weeks at least. No charge that a veterinarian carried infection from one farm to another in the State of Indiana was ever brought up by a farmer. That speaks pretty well for the veterinary profession in Indiana. They weren't trying to spread the disease in order to get a job. I am sorry to say that in many of the counties the county commissioners said to the veterinarian, "Go ahead, we will pay you for making these inspections," and the county attorney says there is no legal way to do this. For that reason there are hundreds of dollars due veterinarians for inspections for which they have never received and never will receive a dollar. But they feel pretty jolly over it. I haven't heard a man kick much. They say it is all in the game, and a man has to do something in support of the live-stock industry.

With all this talk that I have sat and listened to, not a man who has assailed the methods has proposed a new method. Where is your proposition? I will say candidly that the sanitary board and the State veterinarian of the State of Illinois have never in any way tried to put anything over on the State of Indiana. When violations have been made, and they have become aware of them, they have immediately notified us. This has resulted in at least two cases of arrest of men for violating the State quarantine. The spirit of co-operation between the officials of the State of Indiana has been nothing but the best. I feel that this audience will not take the expression of one man as representing the sentiment of the State of Illinois. I feel that the gentleman from Kentucky would be perfectly justifiable if he thought the citizens of Illinois were represented by this one man; but I am glad to see that he doesn't believe any such thing as that about the citizens of Illinois. They are too much like the citizens of Indiana; they are a good set of fellows. [Applause.]

A MEMBER. I also was one of the men who spoke of the cattle of Illinois being a menace. I don't want anybody to think that I think that the gentleman who was opposed to any method of stamping out this disease represents the State. But I do think, and I think you will bear me out in my opinion, that when a man, earnest and honest as that man obviously was, can not be convinced of the error of his ways, and when in the State of Illinois, as I have heard to-day, there exists a large quantity of cholera serum which the Government has not passed and the sale of which can not be controlled, I do say that outside States must regard your cattle as a menace. If I am misinformed, I would like to be corrected. But I have heard to-day of the serum, and I heard this gentleman speak, and I ask you, Is not my opinion justified as to the disadvantage of permitting cattle from your State to go into a State free from foot-and-mouth disease? And will not such a condition continue to exist until every infected animal has been underground for a considerable time?

MR. HORINE. As I understand it, the object of this meeting is to provide for the future practical suggestions that will lead to proper preparation in order that should another infection of the country with foot-and-mouth disease occur, it can be properly met and promptly disposed of. I take it that practical suggestions are in order. In order to accomplish the object sought for, three cardinal things are necessary: First, a campaign of education; second, local

organization of live-stock interests of all kinds; and third, cooperation with the State and Federal authorities. As a means of reaching the first of those propositions, which is vital to the others, I wish to make a practical suggestion. There are now at the service of the people of the United States two departments which, if they will cooperate and work together, can accomplish that first and most vital factor. I speak of the Department of Agriculture and the Post Office Department. The gentleman from Pennsylvania spoke of having sent out 3,500 posters to instruct the people of the localities where they went concerning the nature of the disease and what it was necessary to do to avoid a further spread. That was magnificent work. But that was done at private expense. Why should it be done at private expense? Why should it not be done at the expense of the Government? The Government has the Department of Agriculture to furnish the information, and it has the Post Office Department to furnish the distribution. Why should not those posters be placed in every post office of the United States, where every man, woman, and child that can read can examine and read what they are there for? Along with those illustrated posters could be distributed beneath them a mass of literature to be taken home and read at leisure; and over it could be put the words "Take one." I make this as a practical suggestion to accomplish the purposes of this meeting, and if it meets with your favor, I hope that you will do everything possible to encourage and demand of both of those departments of the Government such action as will comply with that idea.

Prof. J. H. SKINNER. Dr. Nelson, our State veterinarian, who just spoke to you, has spoken of the splendid cooperation which we had in Indiana among the veterinarians. He said that when we began the work we had no money, which is a fact. I want to indorse what Dr. Nelson said, and I also want to say that the various live-stock associations of our State cooperated in cleaning up foot-and-mouth disease in our State.

It is very important for us to get some suggestions here which are going to be helpful in the future. It seems to me that we have been talking about the horse that was stolen and the stable that was locked afterwards in a good many cases. One of the things that we did in Indiana to prevent the spread of the disease was to organize beforehand the counties in which there was no disease. It seems to me that it is quite an important thing to arouse an interest in this subject before the disease reaches the people. Various methods of organization were used in this connection. Following the suggestion made in regard to the use of the post office, in one county the chamber of commerce, which almost every county has, took the initiative in getting a local organization. The disease broke out in one case in this county, and this was a county in which there was no reinfection at all. The chamber of commerce met every night for a week. We had the cooperation of the men from the Bureau of Animal Industry; we had the cooperation of the men from the State; and we had the cooperation of the inspectors. After this case broke out the county was quarantined. The farmers in the southern end of the county—and it happened that my father lived in this end of the county—were very much opposed to this. I own a farm in the east part of the county, which was near the outbreak, and so I was in a rather diffi-

cult position. We suggested the idea of putting into the post office a little sheet giving certain information in regard to the nature of the disease, in regard to the carriers of the disease, and in regard to the things that should be done to prevent any further contagion in the county. On a certain day these went to every farmer in the county who was on a rural route. The information went red-hot, first hand, and that was followed by editorials and other articles in our local newspapers. It seems to me that this is a very effective way of getting information before the people. From this point we send men out to the various counties in several directions of the State so as to head off another infection from the northern section, which was the infected area; and I believe we very successfully did it by organizing those counties in advance. In other words, we got the cooperation of the farmers before they were hurt. They understood the dangers of this disease, and they were willing to cooperate in order to protect their interests.

I went into the county of White, which is the county north of the case which I referred to, and the county which handles more feeding cattle and feeds fat cattle in larger numbers than any other county in our State. There was a suspicious case in that county. The Federal inspector had thrown a temporary quarantine around this herd. I went into the courthouse that morning, and there were 500 farmers. Many of those men were personally acquainted with me. They knew that I had a Federal inspector with me. We went into the meeting, and you could hear the roar when I walked up to the platform. However, they gave us a most courteous hearing. We discussed the disease from its various angles. The Federal man was called upon for his statement, and the farmers were given the privilege of asking any questions that they might desire. We went away from that meeting with a \$500 appropriation made by the county council and the county commissioners with which to carry on the inspection of each car of cattle that had gone into that county during the past two weeks, and there were a large number. They didn't have a case of foot-and-mouth disease in that county, but they did get through that means the cooperation of every cattleman in the county. Up to this day there has not been a case in that county. The farmers began to protect themselves. They knew how. They gave their best cooperation.

When it came to getting the funds, our governor in Indiana said, "We are in a pretty bad way. Dr. Nelson had \$5,000, but if you live-stock men will get back of the proposition, I will stand for the appropriation, and I will agree to do all I can to get the appropriation necessary to pay the expense of killing these cattle." The live-stock organizations, working with Dr. Nelson, went before the legislature and had no difficulty whatever in securing this appropriation. But the best part of all of this trouble that we had come out of the fact that we were able to pass a law in the State which provided for county veterinarians in every county, appointed by the county commissioners with the approval of the State veterinarian, and provided for the compensation of those men. We also got an appropriation which we thought sufficient—and it has been up to date—of \$50,000 as an emergency fund. And I may say on the inside that Indiana hasn't any too much cash in its treasury either. We had no

difficulty in getting those things through, all because of the fine cooperation and the fine spirit which was brought about among the farmers and among the veterinarians.

We have heard both sides of this story. The session is coming to a close; but if we go away from this meeting with the idea that here are the veterinarians on one side trying to tear down and here are the farmers and the breeders on the other side trying to build up, we are going away with a very wrong impression—we are going away with something in our minds that is not going to make for constructive work in the future. There are possibly crooked veterinarians, there are possibly incompetent veterinarians; there are, if you please, some crooked farmers—and we have got all those things to contend with. But the only way that we can ever do anything in preventing this disease in this country is to build up a friendly feeling between the veterinarians, the Bureau of Animal Industry, and all the forces that are actively at work for the upbuilding of agriculture in this country, and all work together. I do hope that some of these gentlemen who seem to have been very unfortunate in some States will not condemn the veterinarians and will not condemn the farmer. We have got to understand that there is much to be learned about some of these diseases. I am one of those men who believes that we have got to go deeper into our problems—that we have got to educate our people. If there is any one thing that the farmer needs to-day it is a fine appreciation of the danger of disease among his live stock, and I may say among the human family. You go out into the country districts and find out what the attitude is toward hog cholera. The farmer isn't afraid of hog cholera until he gets it on his farm. That is the reason he has it. The farmer has not been aroused, until this outbreak of disease, to the danger that he is confronted with on every hand. All these matters should be brought before the farmer in a systematic way, not after the disease comes to him, but before it comes again. And I do hope that we may go away from this meeting with the feeling that we are going to work together; that we are going to eradicate our troubles; that we are going to build up in this country the greatest live-stock industry in the world through cooperation. [Applause.]

MR. ADKINS. I have listened to the various arguments that have been made regarding the foot-and-mouth disease, and I am still of the opinion that the policy of the Department of Agriculture will rid our country of this disease. It is true that there have been some mistakes, from what has been said on all sides, by the veterinarians and by the farmers. But with all that, it is a human agency, and we can not expect too much.

A MEMBER. I am a farmer with a veterinary education. I have had a large experience in foot-and-mouth disease, because I have observed five outbreaks—two in Germany, one in England, two in Argentina, and now I come into your foot-and-mouth disease storm. Gentlemen, I mustn't say whether it is right or wrong to slaughter infected cattle. That is up to you. But I feel very well assured that the veterinarians have injected into the American farmer the idea that foot-and-mouth disease is a poison which can be destroyed just by being buried. It looks to me as if you didn't know anything about the science of disinfection and of isolation. Once I bought cattle in my infected neighborhood and I did not know from where they

had come, but I disinfected them, and after three days I took them, and I never had an infection. This is for your information.

Mr. GREGORY. I want to correct the mistaken impression that is evidently held by the gentleman back here who spoke a moment ago in regard to the hog-cholera serum now held in Illinois, because it does not come up to standard. As I understood Dr. Melvin last evening, that serum is under no suspicion whatever of being contaminated with foot-and-mouth disease, but was not approved by the Government, because it did not come up to the standard of potency. Is that correct, Dr. Melvin?

Dr. MELVIN. Yes.

Mr. GREGORY. So don't hold anything against us on account of that serum. It has no foot-and-mouth disease in it. And even though it might unfortunately be distributed, it won't cause any trouble. There is one point that has not been brought out in all this discussion, and I would like to bring that out. To do so, I want to ask Dr. Melvin another question. When you declare an area to be free, when you take a certain area that has been under closed or restricted quarantine and declare it to be free area, you do that because, in your judgment, it is free from danger of the disease at that time—is that not true?

Dr. MELVIN. Yes.

Mr. GREGORY. We have in Illinois at the present time a considerable amount of free area that has been declared by the United States Department of Agriculture to be absolutely free as far as regulations go. Stock from it can be shipped all over the United States. Yet at this time the Chicago Union Stock Yards Co. will not accept cattle for sale in their market from this free territory. This is a good deal of a hardship on men in this territory. There are 3,000 head of cattle and hogs in this free territory that can not be marketed. The stockyard officials tell me that they dare not accept that stock, because of the regulations of Eastern States, notably Pennsylvania. I would like to ask Dr. Marshall, of Pennsylvania, if he would impose any restrictions on the Chicago Union Stock Yards for accepting stock from the free area in Illinois.

Dr. MARSHALL. We accept live stock from Federal free territory, but as long as the stockyards are Federal restricted we can not accept anything from them. It would not make any difference where they came from.

Mr. GREGORY. You allow stock from St. Louis?

Dr. MARSHALL. Yes. We accept stock from the Federal free section of Illinois.

Mr. GREGORY. You allow stock to go through Pennsylvania to the packers?

Dr. MARSHALL. We allow them to go into Pennsylvania for immediate slaughter from the Chicago stockyards, to houses under Federal inspection, where they can run directly into the slaughtering house. Fourteen houses now receive shipments from the Chicago stockyards.

Mr. GREGORY. This is an important matter for several hundred farmers, because they have free stock in infected territory, and this works a hardship on these men. The Federal Government has placed the stamp of approval on this stock, and I wanted to find out just what the facts were of these restrictions.

Mr. VROOMAN. I think this meeting has been a very interesting one to us all. If it goes on much longer it will turn from a conference into an endurance test. This meeting is merely a start in the right direction. We have met together here, people of adverse views from all parts of the United States, and exchanged our views and exchanged information, and I think we have all learned something. If the thing stopped here the effect would be a little vague and indefinite; hence in order to have our facts more precise the Federal department is expecting to receive memorials from each stock association or other association, or from individuals who have definite and concise information to place before us on the various problems under discussion here, or other problems vitally connected with the live-stock interests of this country. Anyone having information of this character should send it to us. It will be carefully gone over and considered. And if any of the live-stock or other associations desire to appoint committees to go to Washington and discuss points in issue in these recommendations, we shall be glad to see such committees and go over the matters with them. This is merely the inauguration of a new policy of the Department of Agriculture—a policy which we hope will be fruitful of happy results. It is fortunate that we are able to get together and discuss these problems from different points of view with the best of feeling all around—with a certain feeling that, whether we like it or not, we must work out these problems together. No one body of men here can solve them. Providence has placed us on this continent, and we must work out these problems together, and there is no doubt that we can work them out more successfully if we work them out in this way. The Federal department bade you welcome here yesterday. It has been a pleasure to hear from you. We have imparted information to you and we have received information which we are glad to get. The conference is now at an end.

After the meeting had formally adjourned, Mr. W. R. Goodwin rose and made the following statement:

Mr. GOODWIN. The chairman refused to entertain any resolutions. I ask that he entertain the following.

Mr. VROOMAN. The conference being finished, those present are now entitled to take any action they see fit.

Mr. GOODWIN. Here is my resolution:

Resolved, That this conference express its hearty appreciation of the new policy inaugurated by the Department of Agriculture in coming face to face with the live-stock industry of the country.

Mr. TOMLINSON. I desire to second the motion.

Mr. GOODWIN. The motion is seconded. All in favor of it signify by saying "aye." (After the vote:) The motion is carried.

At the suggestion of the chairman the following extract from an address by Dr. John R. Mohler, delivered at Oakland, Cal., in August, 1915, is appended to the report of the proceedings, because of its important bearing upon the general subject of the conference:

METHODS OF ERADICATING FOOT-AND-MOUTH DISEASE.

By JOHN R. MOHLER,

Assistant Chief of the Bureau of Animal Industry, United States Department of Agriculture.

That foot-and-mouth disease must be controlled admits of no argument, therefore differences of opinion hinge solely upon the method or methods to be adopted.

The methods of eradication applicable to foot-and-mouth disease include (1) immunization; (2) quarantine and disinfection; (3) slaughter and disinfection. Each will be discussed separately in the order named.

IMMUNIZATION.

Immunization in the present outbreak was out of the question, as the only serum thus far produced gives but a passing immunity of only several weeks' duration, unstable at best, and impossible to obtain in this country or in sufficient quantities in any country. To Prof. Loeffler more than to any other we owe our present knowledge relative to the effects of serum immunization for foot-and-mouth disease. Ever since he was placed in charge of the German laboratories for the investigation of foot-and-mouth disease we have carefully followed his work. His publications on the subject, and particularly those referring to immunization against the disease, have appeared at various intervals and have been the subject of discussion at several international veterinary congresses. While his work on the serum treatment of this disease is of great scientific interest, its practical value has not yet been proved.

In the last annual veterinary report of the Prussian Government (1914) a detailed description is given of a series of experiments which were undertaken to establish the value of the serum prepared by Prof. Loeffler's method under his own supervision in the Government laboratories on the island of Riems, in the Baltic Sea. These experiments proved that the serum does not protect animals in small doses (20 to 30 cubic centimeters), but large doses with repeated injections afforded a protection to the animals and might be employed to advantage in the eradication work when control of the disease by quarantine measures is attempted. In the partly successful experiments, animals over 3 months old received four injections of serum at intervals of 10 to 14 days. The first injection consisted of 200 c. c. and the subsequent injections of 60, 30, and 30 c. c., respectively. Considering that the preparation of a liter (about a quart) of serum costs \$25 in Germany, it would cost over \$8 to protect every animal over 3 months old, provided the hogs used for the preparation of the virus are passed for food, as is the case in Germany; otherwise, the cost of the serum would be at least doubled. It should also be considered that even in these experiments 6 to 8 per cent of failures occurred, and it must be recognized that in a country like the United States with so many highly susceptible animals, a single failure of protection might prove to be the source of a new outbreak.

The impracticability of the serum immunization is further augmented by the difficulty of preparing the serum; and particularly on

account of this disadvantage the method could not be utilized satisfactorily in countries where the disease is not prevalent or where it occurs only as a result of its periodical introduction. Moreover, the immunity furnished is of quite short duration, lasting only a few weeks.

The preparation of the serum requires a propagation of the foot-and-mouth disease virus, and its presence in this country would be a constant menace to the stock industry, even with the exercise of the greatest precaution and care. This has been substantiated in Germany, where the Government was called upon to pay damages for losses from outbreaks resulting from the escape of the virus from Prof. Loeffler's laboratories.

The live-stock conditions prevailing in this country would also make the serum immunization extremely difficult, if not impossible. The shipment of stock over long distances, particularly the shipments radiating in all directions from stock centers, would necessitate the protection of a large percentage of the stock in the country, or at least in an extensive area. This, with Loeffler's method of serum production, would be impossible.

Protective serum can not be kept for a period of years, as it deteriorates; therefore the preparation of such serum could only be considered at the time of the appearance of an outbreak. Considering the great quantity of serum required for the immunization of a single animal, it is almost incomprehensible how a sufficient amount of serum could be produced to protect the stock even in a single State. It should be borne in mind that the vesicular contents of hogs affected with foot-and-mouth disease is used for the hyperimmunization of the cattle. One or more injections of 100 c. c. of such vesicular fluid are made into each of the cattle which produce the protective serum. The average quantity of vesicular fluid obtained from a sick hog is about 5 c. c.; thus for each injection it is required to have about 20 hogs affected with foot-and-mouth disease. This fact alone clearly suggests the impracticability of Prof. Loeffler's method.

Prof. Mettam, in his report on foot-and-mouth disease for the Tenth International Veterinary Congress at London, 1914, discussing the value of the serum treatment, said:

It must be admitted that serum therapy, as far as foot-and-mouth disease is concerned, is not upon a satisfactory basis. The amount of serum required is large and is costly; its action, as with other sera, is of short duration. It can only give protection for a few weeks at the most, and it may fail in its effects, because either the passive immunity established is of a low degree or because the virulence of foot-and-mouth disease virus is variable. * * * The time has not yet arrived when we can accurately appraise the value of serum as a preventive against foot-and-mouth disease.

Leclainche at the same congress stated:

Up to the present attempts to immunize animals against foot-and-mouth disease have not yielded any results capable of practical application. Effectiveness does not appear to be capable of accomplishment and serum therapy has not rendered the service expected of it. Experiments carried out in France, in which repeated injections of 40 to 50 c. c. of serum were administered, show that these doses only exceptionally confer any immunity. The use of large doses is hindered by considerable practical difficulties and it would be too expensive. Besides the conditions under which serum is obtained are such that its properties are very inconstant. It is impossible to standardize it before use and the effects of the treatment can not be depended upon. Serum immunization, therefore, has only an insignificant prophylactic value.

"Further investigations in this connection are an urgent necessity" was the conclusion of Neverman, Germany's highest veterinary official, at London, in 1914.

In Hoare's *System of Veterinary Medicine*, volume 1, 1913, under the heading of "Protective inoculation," appears the following:

Various serums have been tried by the Continental authorities, but it can not be said that such have proved of practical utility.

The English translation of Hutyra and Marek, volume 1, page 151, in referring to foot-and-mouth disease, states:

The problem of general immunization is not solved at the present time.

Not until a more practical method of immunization has been discovered will it be possible to utilize it for the successful eradication of foot-and-mouth disease in the United States or any other country.

QUARANTINE AND DISINFECTION.

It has long been maintained that the method of quarantine without slaughter is a possible means of eradication, but one which by its very nature admits of a greater spread of infection. As will be shown elsewhere in this paper, foot-and-mouth disease has been combated by quarantine and disinfection in certain European countries for many years. The constant recurrence and widespread dissemination of the infection in these countries prove conclusively that these measures have been unsuccessful. In fact, Prof. Loeffler, in one of his last papers on foot-and-mouth disease, states:

Likewise the second means, the strict carrying out of police and veterinary restrictions, while very frequently it had brought good results, has not prevented the spread of the disease.

The necessity for an absolute quarantine in a disease so easily transmitted is apparent, and this has been found impossible, even in Germany, where military support is given to the best organized veterinary police system in the world. Indeed, every European country which now has the disease hopelessly fastened upon it has permitted the conditions to exist through this very system of attempted eradication. As a result the infection has become so widely distributed in many of these countries that the authorities are forced to accept this measure of control as the only available and economic method under the present conditions.

The infective agent may be spread so readily that it is difficult to prevent its dissemination even where animals are confined in tight sanitary buildings with the most careful use of disinfectants and surrounded by guards, a method entirely impracticable on the average farm, and nearly always much more expensive than the value of the average animal so quarantined. Added to these objections is the greater one of known failure in all countries where this method has been tried.

In the outbreak of 1902 there were about 100 herds already affected in Massachusetts when the department began operations for eradicating the disease. Before all these herds were reported or could be reached the animals had recovered and subsequently were not slaughtered but quarantined and the premises disinfected. The difference between the 4,712 cattle affected in the 1902 outbreak and

the 3,872 slaughtered represents chiefly those that made a recovery, although it also includes a few that died of the disease. Some of the owners of the recovered animals visited the bureau office subsequently and requested that their herds be appraised and destroyed on account of the complications which had developed, involving the udders and feet, making the animals unthrifty and unprofitable. Their requests were complied with, and after the commencement of the work of eradication no newly affected herds were allowed to be held for recovery.

In the 1908 outbreak all herds that became infected were slaughtered, and the same is true of the 1914 outbreak, with the exception of one herd, which was on exhibition at the National Dairy Show, in Chicago, when the disease broke out among them on November 1. At this time it was the desire of the department to slaughter the first few animals which contracted the disease and to limit the spread of the infection to others by establishing hospital conditions, separating the herd into small units, and segregating these groups by means of partitions and muslin curtains saturated with bichlorid of mercury solution and by other sanitary methods. While the latter plan was started and continued for a brief period, it was soon abandoned, as certain herdsmen, with the approval of the employer, adopted the German method of directly exposing the cattle under their supervision in order that the disease might run its course in all the animals as quickly as possible. In the meantime, at the request of a committee of the National Dairy Show Exhibitors' Association, the Secretary of Agriculture granted permission to the owners to retain their cattle under absolute quarantine until they had fully recovered from the disease and were not disseminators of the virus, which should be determined by experiments to be applied subsequently. Before starting these tests it was the desire to move the cattle farther away from the Chicago stockyards, and arrangements for the removal of the cattle to the Hawthorne race track, near Cicero, Ill., were completed on December 26. An inspection of the animals at that time revealed no cases of foot-and-mouth disease. Only a few cases of various forms of ailments, such as articular rheumatism, pulmonary disturbances, and metritis, were observed. Five cases of metritis, however, still persisted, and these, together with two tuberculin reactors, were destroyed prior to the moving of the cattle. In order to prevent the introduction of virus into the new quarters so far as possible, it was decided to spray and scrub the animals with a 3 per cent cresol solution. They were then taken through a foot bath into a separate stable which had been previously cleaned and disinfected with a 6 per cent solution of cresol. The animals were then dried with towels, left there all night, and the next morning loaded into special box cars, in which they were conveyed directly to their new quarters at Hawthorne Park. The same care was exercised with regard to the attendants; all their belongings and clothes were disinfected and fumigated, their shoes disinfected, and the men themselves required to bathe and change to clean linen. At Hawthorne every precaution was used in unloading in order that no infection would be scattered, and the grounds were guarded by deputy sheriffs during the entire period of quarantine.

It is not my purpose to go into details of the quarantine of the dairy show herd, but it should be of interest to record at this time

the experiment which proved that the cattle in the show herd had fully recovered. Since the publications of Loeffler in 1904 it has been known that certain animals which recover from foot-and-mouth disease may act as carriers of the virus for a considerable period, precisely like persons who act as bacillus carriers for long periods after recovery from typhoid fever, cholera, and diphtheria. Such virus carriers therefore must be considered a constant menace to the eradication of foot-and-mouth disease when only quarantine measures are adopted. In one of his latest papers, previously referred to, Prof. Loeffler makes this statement about virus carriers:

After recovering from the disease a few animals, more especially young individuals, harbor living and virulent disease germs for a considerable time upon the mucous membrane of the mouth. From such carriers the causal agent may be transmitted to susceptible animals by close contact, as, for example, by licking.

Prof. Bang in a recent personal letter (1915) writes:

I believe that recovered cows very often retain the virus—probably in clefts (fissures or crevices) in the hoofs, especially in the large flat cavity which often has been formed under the sole and where infected particles of manure can be retained for a long time and be freed after months, when the hoof is worn. We have this year very often had the case that in the summer time the cows in the stable have had foot-and-mouth disease, while heifers and calves were on grass and did not get affected. Late in the autumn they were put into the stable, and a month or two later the disease begun. This may be the consequence of a less good disinfection of the stable, but it seems as likely that the virus comes from the recovered cows. In my opinion the disinfection of the hoofs ought to be done very carefully, but that is indeed very difficult. All loose horn ought to be removed.

Even though such cases are rare, it has been the exceptional cases which the United States Bureau of Animal Industry has been attempting to locate and eliminate. It has been the exceptional cases that have always caused trouble. Those exceptional cases which act as virus carriers have been held responsible by a number of authorities, including Loeffler, for the recrudescence of the disease in portions of Germany; and in the eradication of this disease the exceptional cases must not be ignored. A single instance of this kind may prove disastrous and result in a new outbreak of the infection.

In order to ascertain if any such virus carriers existed among the animals of the National Dairy Show, 50 head of healthy young cattle which had been secured for this purpose were placed in contact with them on March 25. These test animals consisted of 34 steers and 16 heifers, ranging in age from 1 year to 18 months. The tests, which were conducted by veterinarians from the Bureau of Animal Industry, included inoculations of the saliva, feces, urine, vaginal discharges, and hoof scrapings, the feeding of milk and manure, and direct-exposure tests. In the exposure tests one susceptible animal was placed between two recovered show cattle and kept there for 48 to 64 hours, then changed and placed between two other recovered animals. This was done until all recovered animals had been given an opportunity to infect the susceptible animals, and was repeated three times, so that each recovered animal gave 144 hours of exposure to the test animals. At the same time the recovered herd was divided into 48 groups of approximately 15 animals each. From every animal of each group a small quantity of feces was collected, mixed with water, strained, and a cheesecloth saturated with the strained fluid. This cloth was then rubbed into the

buccal cavity of the susceptible animals. If in the following seven days no indications of foot-and-mouth disease developed in any of the test animals, the same grouping of the show cattle followed for subsequent tests, which were undertaken in turn with saliva, urine, vaginal discharges, milk, and scrapings from the interdigital space and around the coronary band of each recovered animal. During the execution of these tests it was considered advisable to remove only a sufficient quantity of the manure and litter to prevent undue accumulation and to assure satisfactory sanitation, the object being to afford the susceptible animals an opportunity for infection with the virus, if such should be present in the feces. These tests continued until May 9. On April 8, 50 hogs were placed in temporary pens within the inclosure and fed on milk from the show cows, and also allowed to consume the leavings and droppings from the cattle.

As a result of these tests no lesions of foot-and-mouth disease were produced, nor were any of the dire results promised by some apprehensive individuals witnessed, such as the production of tetanus, malignant edema, blackleg, necrosis, pyemia, septicemia, etc. On May 31, three weeks after the last inoculation test and seven months after the show cattle had been placed under quarantine, the cattle were released by the Federal Government and permitted to move interstate subject to the regulations of the States at destination. At the beginning of the tests on March 25, 747 animals were included in the number quarantined. On May 30, at the conclusion of the experiment, this number had been increased to 752 by the addition of a number of calves.

The conditions under which these show cattle were kept, and the sanitary quarters in which they were confined during the period of quarantine, would be almost impossible to duplicate under ordinary farm conditions, while the great number of animals proportionately reduced the average cost of quarantine. Added to this, conditions permitted the removal of these animals from the infected barn and surroundings at the Union Stock Yards to the clean and sanitary quarters at Hawthorne Park at a very suitable time. That no virus carriers were demonstrated to exist in this herd is a definitely established fact, but this does not prove that such virus carriers would not exist in other herds under like or unlike conditions. It is, however, a source of gratification to this department, as well as to the public, that conditions allowed these valuable seed animals to be preserved by the methods adopted.

SLAUGHTER AND DISINFECTION.

With our present knowledge slaughter and disinfection is the only satisfactory and economic measure for controlling foot-and-mouth disease in a country like the United States where the infection is not indigenous. All authorities on the subject agreed on this point in their respective reports to the Tenth International Veterinary Congress at London, September, 1914. Thus we have the report of Prof. Mettam, principal of the Royal Veterinary College of Ireland, who states:

Efforts should be promptly made to eradicate the infected centers. The animals affected and those which have been directly and indirectly in contact and which must be considered as probably infected, are slaughtered.

Prof. Hemmelts, of Holland, also claims that—

Preference must by far be given to the immediate removal of virus by slaughtering diseased and suspected animals than to any other measure.

Leclainche, a representative of the French Government at this congress, likewise advocates the slaughter of diseased and exposed animals in cases where the infection has not become firmly implanted and where natural boundaries are present.

Nevermann, the highest veterinary official in Germany, states, in his conclusions, that—

The slaughter of infected herds in Germany has proved an advantageous method of fighting the disease under certain conditions.

Earlier in his article he states:

With their slaughter newly appearing outbreaks may be readily controlled and thereby the unpleasant spread from such outbreaks may be avoided. I desire particularly to call attention to the magnificent results of this method attained in England and in the United States.

Furthermore, paragraphs 159 and 160 of the latest German regulations, issued in 1911, specifically provide for the slaughter of all infected or suspected cattle when foot-and-mouth disease occurs in otherwise healthy or noninfected localities, and provisions are made covering the method of such slaughter, the disposal of the parts of the carcass, hides, and horns, the manner of disinfecting the premises following the slaughter, and the precautions to be observed in disinfecting those taking part in the slaughter before they leave the farm.

An article by the venerable Prof. Guillebau, in the Swiss Veterinary Journal, 1915, claims that eradication by slaughter in the lowlands of Switzerland is indicated, but not so in the mountains.

Other authorities may be quoted, and the consensus of opinion is that in a locality where it is possible to control the disease by slaughter, this method should be given preference over any other.

In view of these facts and the results achieved in the present and former outbreaks of the disease in the United States, can anyone doubt that the measures pursued in this country were not the most suitable for the conditions, especially if the danger from virus carriers is given due consideration?

And it would be desirable for legislative bodies and others to reflect that the kind of cooperation that checked and suppressed one of the most infectious animal diseases in the world can be used effectively against other enemies of the live-stock industry.

PERSONS PRESENT AT THE CONFERENCE.

- Adkins, Charles, president Illinois Live Stock Breeders' Association, Bement, Ill.
- Anderson, B. F., Adrian, Mich.
- Anderson, J. S., State veterinarian, Lincoln, Nebr.
- Andrew, Jess C., West Point, Md.
- Arnett, C. N., professor of animal industry, Montana State College of Agriculture, Bozeman, Mont.
- Atherton, I. K., veterinary inspector, United States Bureau of Animal Industry, Chicago, Ill.
- Atkinson, James, editor Homestead, Des Moines, Iowa.
- Ayers, H. W., Honey Creek, Wis.
- Bahnsen, Peter F., State veterinarian, Atlanta, Ga.
- Baird, S. A., Waukesha, Wis.
- Baker, A. H., Chicago Veterinary College, Chicago, Ill.
- Baker, John C., breeder of Percheron horses, Chicago, Ill.
- Baker, R., Wisconsin Live Stock Breeders' Association, Madison, Wis.
- Ball, Carlton, agriculture, live stock, and dairy agent, Southern Ry. Co., St. Louis, Mo.
- Balser, F. A., assistant State veterinarian, Newcastle, Ind.
- Barnes, P. R., Northern Illinois Milk Producers' Association, Chicago, Ill.
- Barney, W. B., dairy and food commissioner, Des Moines, Iowa.
- Bassett, R. J., Kentucky live-stock sanitary board.
- Bayard, E. S., editor National Stockman and Farmer, Pittsburgh, Pa.
- Bearce, Boyden, live-stock sanitary commissioner, Augusta, Me.
- Beechy, L. P., veterinary inspector, Bureau of Animal Industry, Columbus, Ohio.
- Bent, Mr., of Bailey Falls farm, Oglesby, Ill.
- Birch, G. Al., general manager, Bourbon Stock Yards Co., Louisville, Ky.
- Blackburn, Fred R., member Kentucky live-stock sanitary board; also member State board of agriculture, Stanton, Ky.
- Blastock, Robert S., Hampshire Sheep Breeders' Association, Lexington, Ky.
- Brooks, F. S., general live stock agent, Santa Fe System, Kansas City, Mo.
- Brooks, I. S., county adviser, La Salle County, Ottawa, Illinois.
- Brown, L. F., member State board of live-stock commissioners, Galesburg, Ill.
- Brown, R. W., secretary American Galloway Breeders' Association, Carrollton, Mo.
- Buckingham, E., vice president and general manager, Union Stock Yards Co., South Omaha, Nebr.
- Bushnell, F. F., Borden's Condensed Milk Co., Harvard, Ill.
- Butler, W. J., State veterinary surgeon and secretary live-stock sanitary board, Helena, Mont.
- Caffey, Francis G., solicitor, United States Department of Agriculture.
- Cahill, Edward A., Massachusetts department of animal industry, Boston, Mass.
- Cahill, Dr., State inspector, stock-yards, St. Joseph, Mo.
- Caldwell, William H., secretary and treasurer American Guernsey Cattle Club, Peterborough, N. H.
- Calkins, R. C., assistant State veterinarian, Fairbury, Ill.
- Canfield, Thomas H., Minnesota State fair board, American Yorkshire Club, Lake Park, Minn.
- Carpenter, Reid, president American Shorthorn Breeders' Association, Chicago, Ill.
- Carter, A. M., sheep breeder, Rexburg, Idaho.
- Cary, C. A., State veterinarian, Auburn, Ala.
- Clow, John B., farmer and feeder, Plainfield, Ill.
- Cohen, Mat S., commissioner of agriculture-elect, Frankfort, Ky.
- Conner, John, live-stock agent, Wabash R. R., Chicago, Ill.
- Conner, J. D., jr., secretary-treasurer American Association of Importers and Breeders of Belgian Draft Horses.
- Cooley, A. S., State veterinarian, Columbus, Ohio.
- Cotton, Charles E., president State live-stock sanitary board, Minneapolis, Minn.
- Craig, S. J., Lake County agricultural agent, Crown Point, Ind.
- Crewe, W. F., State veterinarian, Bismarck, N. Dak.
- Crull, W. W., special agent Indiana & Ohio Live Stock Insurance Co., Crawfordsville, Ind.
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- Dering, J. K., Lake Villa, Ill.
- De Vine, J. F., Goshen, N. Y.
- Ditewig, George, veterinary inspector, Bureau of Animal Industry, Washington, D. C.
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- Downing, Tom, animal health commission, Washington, Iowa.
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- Dresser, J. C., assistant manager, Toledo Union Stock Yards, Toledo, Ohio.
- Dunphy, George W., State veterinarian, Lansing, Mich.
- Dupee, W. H., Edgemoor farm, Santee, Cal.
- Dyson, O. E., State veterinarian, Springfield, Ill.
- Ebe, R. A., general live-stock agent, Baltimore & Ohio R. R., Baltimore, Md.
- Eckhardt, William G., Dekalb County Agriculturist, Dekalb, Ill.
- Eddy, C. W., health department, meat and dairy inspection division, Cleveland, Ohio.
- Eichhorn, Adolph, chief of Pathological Division, Bureau of Animal Industry, Washington, D. C.
- Eicke, H., superintendent Chicago terminal division, Wabash Railway Co., Chicago, Ill.
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- Ettinger, Charles D., Maple farm, Tinley Park, Ill.
- Evans, John D., Pure Bred Record Association and Aberdeen-Angus Association, Sugar Grove, Ill.
- Evans, M. R., Holstein-Friesian cattle breeder, Hinckley, Ill.
- Favill, H. B., president National Dairy Council.
- Feeley, R. O., State veterinarian, Clemson College, S. C.
- Felker, Andrew, commissioner of agriculture, Concord, N. H.
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- Gregory, C. V., editor Prairie Farmer, Chicago, Ill.
- Groff, J. L., Ohio.
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- Lamar, Len H., director American Aberdeen-Angus Breeders' Association, Sioux City, Iowa.
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- Marshall, C. J., State veterinarian, Harrisburg, Pa.
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